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AN INTERDISCIPLINARY JOURNAL OF PUBLIC POLICY ANALYSIS

REFORMING THE MONETARY REGIME

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Karl Brunner	Deficits, Interest Rates, and Monetary Policy *Comment by* **Ben E. Laden**
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INTRODUCTION

REFORMING THE MONETARY REGIME

James A. Dorn

> Monetary law in the United States is ambiguous and chaotic, does not contain a suitable principle for the exercise of the monetary power held by the Federal Reserve System, and has caused confusion in the development of Federal Reserve policy.
>
> —Clark Warburton

The Chaotic State of Monetary Law

Present U.S. monetary law incorporates neither the "convertibility theory" of monetary control nor the "responsibility theory," leaving monetary law in the chaotic situation Clark Warburton found it in 1946.[1] The Fed continues to operate in a fully discretionary manner. Under the current fiat money regime, there is no constitutional limit binding the central bank to a noninflationary path of money growth; there is no legislative mandate to achieve a stable value of money. As such, the erratic nature of monetary policy continues and there is no firm commitment to achieve long-run price stability.[2]

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[1]The opening quote is from Warburton ([1946] 1966, p. 316). In that article he distinguishes between the convertibility theory of monetary control—incorporated in the Federal Reserve Act of 1913, but discarded by the monetary legislation of the early 1930s—and the responsibility theory of monetary control, which has never been embodied effectively in U.S. monetary law. Under the convertibility theory, the decisions of households and businesses determine the optimal quantity of money and the government's role is to ensure convertibility among monies and of each money into the standard money. Under the responsibility theory, government is held accountable for controlling the stock of money and maintaining its value (pp. 291–92).

[2]This is not to say that price-level stability may not be an important objective of monetary policy, but simply that this objective is not the sole objective of policy and may be traded off for other policy goals; hence, the experience of "creeping inflation." Fed officials certainly consider price-level stability important, but they are not constrained to that policy by law. Without such a binding constraint, the future trend of the price level is uncertain, and this uncertainty is greater than it would be under a rules-based regime.

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Current law specifies no single objective for monetary policy and lacks an enforcement mechanism to achieve monetary stability. The multiplicity of goals and the absence of an appropriate penalty-reward structure to maintain stable money is evident from Section 2A of the amended Federal Reserve Act (Board 1984, p. 6):

> The Board of Governors . . . and the Federal Open Market Committee shall maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates. . . . Nothing in this Act shall be interpreted to require that the objectives and plans with respect to the ranges of growth or diminution of the monetary and credit aggregates disclosed in the reports submitted under this section be achieved. . . .

The lack of any effective constraint on the discretionary powers of the central bank reflects Congress's failure to safeguard the value of money, as intended in Article I, section 8 of the Constitution, and has led to a monetary system characterized by significant uncertainty about the future value of money. This uncertainty—as a chief feature of the present monetary regime—has been noted by Karl Brunner (1984, p. 187): "participants in the socio-economic game do not know what the course for the next three or six months or the next five years will be. Even the policymakers do not know what they will do in three or six months or in one year. The creation of uncertainty appears in the prevailing context of policy institutions as a more or less deliberate instrument of monetary policy." The recent statement of the Shadow Open Market Committee (1985, pp. 2–3) confirms this:

> Money growth has shifted from high to low every three to five months since early 1984. This pattern increases uncertainty and discourages long-term planning. Further, the trend rate of money growth is rising, reopening the prospect of another round of inflation. . . . The only way to avoid the high costs of inflation and disinflation is to avoid inflation. Inflation will not be avoided unless the Federal Reserve and the pro-inflationists in Congress and the Administration accept a long-term commitment to achieve stability.

Thus, even though inflation has been reduced dramatically under Chairman Volcker—from the double-digit rates of the late 1970s to 3.6 percent in 1985—the path to this disinflation has been highly erratic in terms of the behavior of money growth rates.[3] Nor is there

[3]According to Fand (1985, p. 60): Monetary management under Volcker has been "wildly volatile and topsy-turvy. . . . One has to go back to the 1940s to find such erratic behavior in the money supply. Quarterly money growth shot up from minus four percent to 17 percent in 1980, and from three percent to 17 percent in 1982, while plummeting from 18 percent to three percent in 1983–84. In the six years before Mr. Volcker, the highest quarterly growth rate was only eight percentage points above the lowest."

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any guarantee of future price-level stability, especially in light of the double-digit growth of M1 during 1985.

The lack of any anchor to limit the inflationary drift of U.S. monetary policy—a policy Axel Leijonhufvud (1984, p. 23) has referred to as a "random walk monetary standard"—continues to allow for the politicization of monetary policy, posing a danger to the stability of the entire economic system. Within a fiat money regime, there will be obvious pressures to run budget deficits and later reduce the real debt burden via inflation. In addition, in a modern democracy with downward wage rigidities, there will be political pressure to move toward "full employment" by accelerating inflation. In the longer run, politically unacceptable rates of inflation will be met by mounting pressures for wage and price controls, which adversely affect economic efficiency and attenuate economic and personal freedoms. The lack of a permanently stable monetary order therefore upsets the free market order and threatens the future of democracy.[4]

From the standpoint of public choice theory, it appears that the adverse consequences of erratic money cannot be avoided unless the control of base money becomes depoliticized, that is, until there is a constitutional constraint on the money-creating powers of the central bank. Accordingly, Milton Friedman (1984) has shifted his focus from improving the Fed's operating procedures or the *tactics* of monetary policy to considering how monetary *institutions* can be reformed to improve the prospects for price-level stability.[5] His preferred rule is now to freeze the monetary base, eliminating the money-creating powers of the Fed. As Friedman notes (p. 51): "The great advantage of this proposal is that it would end the arbitrary power of the Federal Reserve System to determine the quantity of money and would do so without establishing any comparable locus of power and without

[4]In modern democracies, says Haberler (1981, p. 19):

> [G]overnments overreact even to comparatively low levels of unemployment and associated inflation—by excessive monetary-fiscal expansion, thus accelerating and perpetuating inflation; by ill-conceived regulations, by price and wage controls, and by import restrictions and subsidies in different forms to noncompetitive firms and industries. This leads to an enormous growth of government bureaucracy and stifling taxation—a potent discouragement of saving and investment—and to economic inefficiencies. Thus, the growth of productivity slows down and comes to a halt which makes it still harder to stop inflation. This vicious circle undermines the foundation of the capitalist, free market economy, and endangers the future of democracy itself.

[5]Compare Brunner (1984, pp. 187–88): "Discretionary management is prone to drift into depression or permanent and erratic inflation associated with intermittent recessions or stagnation. This experience directs our attention to the choice of a monetary regime. The *nature* of the monetary *order* and not the specific actions within a discretionary regime emerged in recent years as the central issue of a more fundamental policy problem."

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introducing any major disturbances into other existing economic and financial institutions." In this way, the chaotic state of existing monetary law would be replaced by a simple monetary rule constraining the growth of base money to zero. Friedman expects such a rule (or even a close approximation) to reduce the uncertainty of the present discretionary regime and produce a more stable price level over time.

Addressing the Fundamentals

Even though it may be agreed that the present fiat money regime can be improved by an effective monetary rule, the question about the exact form of the rule is still undecided; the search for stable money continues. Moreover, after the first-order question about the form of the monetary regime is decided, there is still the second-order question of how to implement and maintain the desired regime. The political economy of monetary reform cannot be ignored.

In order to address the fundamental issues surrounding monetary reform, the Cato Institute held its third annual monetary conference—**The Federal Reserve: Reforming the Monetary Regime**—in Washington, D.C., February 21–22, 1985. Papers were presented in four major policy areas: (1) an appraisal of the Fed's policymaking function; (2) the conduct of Fed policymaking under the current fiat money standard; (3) monetary discipline under a rule-driven regime versus a discretionary regime; and (4) the problems of changing to an alternative monetary regime. The refined versions of the conference papers along with comments by noted economists and policymakers form the core of this volume.[6]

In the opening paper, William Poole finds that within the present discretionary monetary regime, there is a close correspondence between the political process and the Fed's money-supply process. Although it is not possible to observe directly the motives of policymakers, one can derive their motives from the underlying institutional framework, and therefore act "as if" monetary policymakers' motives can be observed. The stop-go nature of Federal Reserve policy is evident and reflects, in part, the political constraints impinging on Fed behavior, contrary to the Fed's assertions of independence. The myopic nature of the political process spills over to the money-supply process and the "number one problem syndrome"—focusing on the crisis of the moment—results in policies that are inconsistent over time. Greater Fed independence, says Poole, is not the answer to erratic monetary policy, nor is better management. The

[6]The paper by Wells and Scruggs was accepted apart from the conference proceedings.

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real solution lies in the adoption of a money growth rule that will limit the central bank's discretion and achieve price-level stability. The movement to an alternative monetary regime, however, requires a careful analysis of the existing political process and the motives of policymakers.

The interrelationship between fiscal and monetary policy is examined by Karl Brunner. He notes that a persistent, noninflationary monetary policy tends to lower nominal interest rates by reducing the inflation premium. Such a policy, however, is unlikely to exist in the context of permanently large deficits, Brunner warns. Indeed, with large permanent deficits, there will be an upward drift in the basic real rate of interest, a higher risk premium, and the persistence of an inflation premium signaling an accommodative monetary policy. A noninflationary monetary policy, therefore, is a necessary—but not sufficient—condition for relatively low nominal interest rates. In addition, there must be a persistent policy of holding the deficit to a small fraction of national income. Since permanently large deficits point to eventual inflation, the noninflationary monetary regime will become threatened in this environment; it is likely that political pressure will force the monetary regime to adjust to the fiscal regime. Hence, there is a need to constrain deficit spending so that a noninflationary monetary policy can be implemented with confidence.

Jerry Jordan has the same basic message as Brunner: effective monetary reform must be preceded by responsible fiscal reform. An end to the deficit-ridden fiscal regime is therefore a necessary condition for long-run price stability. To move to a more stable fiscal and monetary regime, Jordan recommends requiring a balanced federal budget and limiting the amount of debt that the Fed can monetize. The latter would be accomplished by legally establishing the maximum monetary base and allowing it to increase at a rate sufficient to maintain price stability—a scheme Axel Leijonhufvud has proposed. In a fiscal regime with persistently large deficits, however, monetary policy will become, of necessity, an instrument of fiscal policy.

The institutional evolution of the Federal Reserve is traced by Richard Timberlake. He begins by examining the monetary institutions prior to the Federal Reserve Act—the gold standard, national banking system, "independent" Treasury, and private clearinghouse system. The political pressures for monetary reform that culminated in the Federal Reserve Act of 1913 are carefully discussed. Timberlake then examines the Banking Act of 1935, the Federal Reserve System as it evolved after 1935, and the Monetary Control Act of 1980. What emerges is a picture of an imperial Fed. Ending the Fed's

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hegemony, says Timberlake, requires privatizing the 12 Federal Reserve Banks and ending the Fed's monopoly of base money by freezing the base and allowing a market for private currencies. Timberlake also would privatize the Treasury's gold stock. These reforms, he believes, would restore the monetary system to one that is more consistent with individual freedom and a stable price level.

Lawrence Roos, a former president of the Federal Reserve Bank of St. Louis, provides first-hand evidence of the inherent conflicts of U.S. monetary policymaking. From his experience on the Federal Open Market Committee (FOMC), Roos observes that current monetary policy is characterized by the lack of clear and consistent policy goals. Fed policymaking is myopic and there is little consensus on longer term objectives. Instead of directly controlling the quantity of bank reserves to achieve persistent price-level stability, the Fed finds it more convenient to target short-run interest rates and to focus on whatever policy objective appears most pressing. The multiple and inconsistent policy objectives make it impossible to hold the Fed accountable, which is precisely how the Fed protects its discretion.

Paul Craig Roberts criticizes the Fed for its failure to pursue a steady policy of noninflationary money growth, which is what the Reagan administration recommended in 1980. The roller-coaster conduct of monetary policy, says Roberts, has derailed Reagan's supply-side policy. If supply-side economics is to be effective in promoting incentives to work, save, and invest, it requires a stable monetary framework. Under the present fiat money regime, however, the Fed's primary concern is to maintain its discretionary power. And this self-protective incentive acts to "crowd out" the administration's policy goals. To make the Fed more accountable, Roberts recommends placing the Treasury secretary on the FOMC, reducing the terms of the Board of Governors, and reducing Fed secrecy.

President Robert Black of the Federal Reserve Bank of Richmond agrees with Roos that under the Fed's current legislative mandate there is no overriding policy objective. Instead, the Fed reacts to whatever policy problem seems most important at the time, whether it be unemployment, inflation, or high interest rates. A discretionary monetary policy based on fine tuning the economy, however, is bound to be destabilizing. To avoid the uncertainty of the present discretionary regime, Black recommends price stability as the predominant goal of monetary policy. This objective would be attained by controlling the monetary aggregates, in particular, M1. Targeting M1 to achieve a stable value of money, says Black, would be consistent with the intent of Article I, section 8 of the Constitution, and would increase the Fed's credibility and independence.

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Robert Hetzel explains the political rationale for the current discretionary monetary regime, discusses the impact of this regime on the formulation of monetary policy, and considers the possibility of congressional acceptance of a meaningful, more specific mandate for the conduct of monetary policy. Like Black, he advocates price stability as the most meaningful policy mandate. But as long as Congress's main concern is the effects of monetary policy on income distribution—especially on interest rates—Congress is unlikely to accept price stability as the sole objective of monetary policy. Nevertheless, Hetzel notes that conducting monetary policy by targeting the federal funds rate is not a politically efficient method of redistributing income. Therefore a legislative mandate requiring the Fed to stabilize the value of money may become politically acceptable.

To achieve a stable price level, stable interest rates, and stable exchange rates, Marc Miles recommends returning to a Bretton Woods-type monetary system. He claims that in today's world economy, the Fed cannot hope to control the quantity of money and instead should focus directly on stabilizing the *value* of money. Price rules—setting the dollar price of some standard commodity or commodity bundle and stabilizing dollar interest rates—should be instituted to stabilize the value of the dollar in the global economy. Miles's contention that the existence of global money markets, such as the Eurodollar market, attenuates the Fed's ability to control the supply of dollars is contested by Anna Schwartz. There is no evidence, says Schwartz, that the Eurodollar market (or domestic money substitutes) interferes with the Fed's control of the domestic money stock; thus, there is no reason for abandoning a money supply rule as the most effective way to achieve price-level stability over the long run.

William Butos observes that the failure of the Fed to achieve price-level stability is directly related to the so-called knowledge problem. This problem concerns the decentralized nature of economic knowledge and the difficulty the Fed has in observing the underlying structure of the economy. Without detailed knowledge of the economy's structure and its dynamics, the Fed is left to react in a piecemeal fashion to current economic problems. And, in many cases, this discretionary approach to policy furthers the very problems that the monetary authorities seek to resolve. Butos therefore explores alternative monetary regimes to see how each might solve the knowledge problem. He thinks that a money growth rule would avoid many of the problems of discretionary monetary policy, but still sees difficulties with implementing such a rule. F.A. Hayek's proposal for abolishing monetary policy altogether and instituting a regime of

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competing private monies is of interest, says Butos, but needs further analysis.

Historical evidence of the stability of the U.S. Free Banking Era (1837–63) is offered by Arthur Rolnick and Warren Weber. They point out that if the institutional framework is one that penalizes unsound banking practices, competitive banking will perform efficiently. It is only when the underlying institutional arrangement rewards or fails to penalize irresponsible banking decisions that private banking becomes unstable. In the case of the Free Banking Era, the authors found that the state bond requirements provided valuable information about the stability of bank portfolios to noteholders, which helped prevent individual bank failures from disrupting the entire banking system. If free banking is not inherently unstable, there is little need for government intervention, except to define the "rules of the game"; that is, banking regulation should be informative rather than interventionist.

Donald Wells and L. S. Scruggs provide further evidence of the stability of unregulated private banking. They show that banking crises typically have stemmed from excessive government regulations that limit branching, restrict private note issuance, and set reserve requirements. The establishment of federal deposit insurance, which itself has serious flaws, was a reaction to these problems. The authors contend that a movement to a free-banking regime with competing private currencies would be socially beneficial and result in greater price-level and economic stability.

Ulrich Kohli and Georg Rich examine the success of the Swiss central bank's monetary targeting procedure. Since 1975 the primary instrument of monetary policy has been the monetary base. In 1980 the Swiss National Bank (SNB) actually began setting the money supply targets in terms of the base. Thus, unlike the Federal Reserve, the SNB has instituted a money supply rule and adopted price-level stability as its "ultimate objective." Within this policy framework, the SNB has achieved a relatively low average rate of inflation, indicating that a monetary base rule is a reliable means of achieving price-level stability. Because the SNB has largely avoided the erratic monetary policy characteristic of the U.S. central bank, it has achieved a credibility that has escaped the Fed. The Swiss central bank, however, remains what the authors call a "pragmatic monetarist," since it stands ready to modify its monetary base target if exchange-rate considerations so dictate. The SNB's predominant consideration, however, is price-level stability. The two major lessons identified by the authors are the necessity of policy consistency in maintaining a

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noninflationary growth of the monetary base and the need for some flexibility in implementing this policy.

In the final paper, Roland Vaubel carefully examines the case for competitive versus governmental supply of base money. He begins by discussing the barriers that national governments have erected to prevent currency competition from foreign central banks and from private money producers. Next, he considers whether the restriction of competition from foreign central banks can be justified on "welfare-theoretic grounds," whether there is a case for private currency competition, and whether there is any role for government provision of base money. He makes a strong case for free currency competition among central banks, arguing that such competition would lower the expected rate of inflation. After analyzing the many objections to the private supply of base monies, Vaubel finds no conclusive argument for restricting private monies. Finally, with respect to whether the government ought to supply base money, Vaubel finds the public-goods argument for a governmental money monopoly redundant, and suggests that the only way to test the relative efficiency of government versus private monies is to allow open entry into the money-producing business. This would also be a test of whether there is a natural monopoly in the supply of a common currency. Thus, currency competition is the only reliable way to discover the most efficient monetary arrangement. In response to Vaubel's paper, Phillip Cagan suggests that if the Fed's erratic monetary policy persists, "competitive monies may develop through the back door" as individuals search for stable money.

The Road to Monetary Reform

The chaotic state of U.S. monetary law, which leaves the Fed with vast monetary powers, calls for a careful consideration of the institutional changes needed to promote monetary stability. In particular, it is useful to consider the choice of a monetary regime and the probable operating characteristics of alternative regimes, because as Friedman (1984, p. 24) notes:

> The conduct of monetary policy is of major importance: monetary instability breeds economic instability. A monetary structure that fosters steadiness and predictability in the general price level is an essential precondition for healthy noninflationary growth. That is why it is important to consider fundamental changes in our monetary institutions. Such changes may be neither feasible nor urgent now. But unless we consider them now, we shall not be prepared to adopt them when and if the need is urgent.

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Achieving meaningful monetary reform requires an understanding of the probable impact of alternative monetary regimes on the maintenance of price-level stability. It also requires an understanding of the type of political arrangement necessary to implement and maintain a monetary constitution. The papers in this volume are concerned not merely with patching up the present discretionary monetary regime but with finding an alternative road to monetary stability that may one day become politically viable.

In order to avoid detours on the road to monetary reform, it is essential to know what regimes are more likely than others to produce long-run price stability, a more competitive banking system, and a more efficient price system. By considering the characteristics and effects of alternative monetary regimes, as well as the incentive structure of the present regime, the papers in this volume will help lay the groundwork for future reform.

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MONETARY CONTROL AND THE POLITICAL BUSINESS CYCLE

William Poole

Introduction

This paper might equally well be entitled, "Political Control and the Monetary Business Cycle." The observations I will offer reflect 25 years of following current events and studying economic policy and a recent period of government employment of two and one-half years. My observations are meant to be subject to empirical testing, but that task lies outside the scope of this paper.

In casual conversations on economic policy, questions about the objectives and motives of the policymakers almost always arise. Along the spectrum of published work on economic policy, ranging from abstract theoretical models to newspaper editorials, the mix of objective analysis and subjective speculation about the policymakers' motives changes. Scholarly work by economists, though not by historians, usually avoids analysis of motives; the objectives of the policymakers are taken as given. Conversely, editorial writers often speculate about the policymakers' motives, and if those motives are judged "bad" the policy actions themselves are judged bad and objective analysis of policy deemed irrelevant.

I myself have always been uncomfortable when discussing motives, for they are ordinarily not directly observable and subject to empirical verification. Moreover, it is very easy for policymakers to believe that they have been unjustly attacked when observers discuss their motives, for the policymakers may know that they did not have the intentions ascribed to them.

In a paper on the interplay of politics and economics in the determination of Federal Reserve policy I cannot avoid discussing the

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policymakers' motives. However, my commentary on motives should be interpreted quite strictly in an "as if" sense. Economists are accustomed to analyzing business behavior under the assumption that business firms produce at the point where marginal cost equals marginal revenue, and the fact that many businessmen deny they have any such intention or motivation in making their production decisions is irrelevant to the predictions of the economic theory based on the profit-maximizing assumption. My comments on the motives of policymakers should be interpreted in exactly the same "as if" sense; sometimes the calculations are conscious and well understood by the policymakers and sometimes they are not. I also want to emphasize that the behavior of the Federal Reserve is similar in many respects to the behavior of other government agencies and, for that matter, divisions of large private firms.

The paper is divided into five major sections. In the first I discuss the role of motives in public debates about policy, and in the second the objectives of the Federal Reserve System. Issues concerning policy myopia are taken up in the third section, and political gaming is discussed in the fourth. A final section contains some overall comments and conclusions.

Public Debates on the Policymakers' Motives

The role of policymakers' motives in public policy debates is underappreciated in scholarly work on economic policy. Motives are ignored because they are unobservable and would not seem to have any relevance to assessment of the objective effects of policy. But the role of motives ought to be examined more thoroughly because of their influence on public policy debates and on market expectations about future policy actions.

The motives of the policymakers are important for market participants because an understanding of the reasons for particular policy actions may provide information useful in predicting future policy actions. The great importance of predicting future policy actions is probably the reason why there are so many Washington seminars and "insider" newsletters purporting to uncover the "real story" behind policy actions that are themselves readily observable.

The rivalry among competing agencies, personalities, and political parties often leads to a great emphasis on the motives of the competing parties. Newspapers and their readers often seem more interested in the rivalries themselves than in the policy issues. Public perceptions of policy actions and assessment of the performance of agencies is very often dependent on issues of motivation. If the

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policymakers' motives are judged to be good ones, policy failures are often excused. Conversely, policy successes may be criticized if the motives are judged to be poor. For example, policy successes are often criticized as being "opportunistic."

Beyond the predictive value of understanding motives, public debates often focus on motives because the technical aspects of policy are ordinarily extraordinarily difficult to understand. Indeed, the implications of many policy actions are so complicated that it is difficult to explain them even to well-trained experts in the field. It is not surprising that public policy debates in the Congress and the op-ed pages of newspapers often focus on motives by default.

Because the electorate emphasizes motives, so also must the policymakers. Monetarist critics of the Federal Reserve often find themselves frustrated by this emphasis in the public policy debates. Efforts to put the debate on a basis that intelligent laymen can understand by emphasizing basic and first-order monetary effects gets nowhere because economists both within and without the Federal Reserve System argue that such analysis is "simplistic." But the layman cannot understand highly sophisticated economic arguments. Thus, the debates easily turn to matters of motivation; economics per se has little to offer on this subject, and the Federal Reserve defends itself by insisting that it is well-meaning, which it is, and interested only in serving the public interest. And that is where the debate then rests.

The Objectives of the Federal Reserve System

Officials of the Federal Reserve System pursue the traditional policy objectives laid out in the economic policy literature. These are the objectives of low inflation, full employment, financial stability, and so forth. At a personal level, Federal Reserve officials with very few exceptions care deeply about these objectives and often find themselves agonizing over the policy choices they must make. Many Federal Reserve officials have long careers in the System, and serve at very substantial financial sacrifice. There are, of course, compensations in the form of higher expected future income from employment after leaving the System, from extensive travel, and so forth, but it would be a misuse of language to ignore the deep sense of responsibility felt by most Fed officials by claiming that these compensations show that these officials in fact serve for purely "selfish" reasons.

Federal Reserve officials, almost without exception, have a deep conviction that Federal Reserve independence is essential to achiev-

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ing the traditional economic objectives. Thus, maintaining independence from direct and continuous political control is itself an objective of the Federal Reserve System. Pursuit of this objective may at times lead the Federal Reserve to take policy actions that it knows are not in the interest of furthering the traditional economic objectives. The issue here is essentially the same as the possible conflict for the firm in pursuing short-run versus long-run profit maximization. There is certainly nothing wrong in principle about trading short-run economic performance against improved long-run economic performance. Indeed, economists are constantly emphasizing the dangers of policy myopia. The issue is not one of principle but of whether policy actions to further political independence in fact have the effect of improving long-run economic stability.

Another motivation for Federal Reserve officials to maintain political independence is to enjoy an easier and more comfortable life. It is perfectly natural for the Federal Reserve to want to maintain some of the comforts it enjoys compared to the typical government agency. This "bad" motive, though surely operative, is greatly overstressed in many of the debates about Federal Reserve independence precisely because it is such an easy shot by Federal Reserve critics. It is also, in my opinion, a criticism without much merit. The turnover rates among middle-level Federal Reserve employees suggest that the comforts of Federal Reserve employment are not all that great, and direct knowledge of the differences between Federal Reserve employment conditions and those of the civil service suggest that the Federal Reserve has been able to avoid only a few of the worst features of the civil service employment system.

The "Number One Problem" Syndrome

Public discussion of economic policy in the Congress and newspapers is dominated by the "number one problem" syndrome. Policymakers are expected to cure whatever it is that most afflicts the economy at the moment. This phenomenon is not quite the same as the one economists call "myopia." As generally discussed, myopia involves excessive attention to the short-run effects of policy, with too little attention being paid to the remote and/or long-run effects of policy. Because the effects of monetary policy show up first on employment and output, and only later on inflation, monetary policy myopia can be expected to impart an inflationary bias to the economy.

Myopia can explain a policy bias over time but cannot readily explain changes in policy over the course of the business cycle. Myopia fits the typical conditions in the early stages of a cyclical

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expansion when emphasis on raising employment can lead to excessively high money growth because the longer-run inflation costs are too heavily discounted. But an explanation involving myopia does not fit the situation where the Fed maintains a restrictive policy well into a recession. For example, monetary policy was very restrictive throughout 1974 as unemployment rose, and it was not until late 1974 and early 1975—only shortly before the business cycle trough in March 1975—that the Fed changed its policy stance. (After the cycle peak in November 1973, the Fed did not cut its discount rate until December 1974; the discount rate, of course, is not itself important except as a symbol of Fed intentions.) Similarly, Fed policy remained on a very restrictive course through the middle of 1982 despite the continuing rise of unemployment after the cyclical peak in July 1981.

In both of the above examples, public concern over inflation was so high that a very substantial increase in unemployment was required to switch the focus of concern away from inflation and toward unemployment. The policymakers' own views play a role here, but the constraint provided by public attitudes should not be underestimated.

The syndrome is in part the result of public misconceptions about economic policy. It is a fact of arithmetic that increasing money growth one year requires reducing money growth in some other year if the trend rate of money growth is not to rise. With high probability, higher average money growth will raise the inflation rate; thus, higher money growth in the short run will raise inflation unless there is an offset in the form of lower money growth later. Would the Federal Reserve have raised money growth in a year such as 1977 if it had been required at the same time to provide a plan for an offsetting reduction in 1978 or 1979? Conversely, would the Federal Reserve have been willing to forsake a period of lower money growth in a period such as 1981 if the price of doing so were a commitment not to permit higher money growth in some subsequent year?

This problem is not, of course, peculiar to the Federal Reserve. Would the Congress have been willing to cut tax rates in 1981 if it had been required either to cut spending at the same time or to legislate specific future tax increases or spending reductions?

The government can avoid commitment to future policy offsets because there is just enough truth to statements insisting that future offsets may not be necessary. Tax reductions need not be offset by future tax increases if there is sufficient economic growth to provide high enough revenues to cover the level of government expenditures. Changes in money growth need not be offset in the future if there are lasting changes in the income velocity of money.

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The problem with the monetary policy claim is not that the appropriate velocity offsets *never* occur, but that they are infrequent and that on the average velocity and money growth change in the *same* direction. But offsetting changes in velocity do occur just often enough, as in 1975 and 1982–83, to make plausible Federal Reserve pursuit of monetary policies that do not involve commitment to offsetting money growth changes in the future. Occasional policy successes, therefore, are used to justify a procyclical monetary policy driven by a political process dominated by myopia and the number one problem syndrome.

Public concentration on the number one problem tends to push policymakers into time-inconsistent policies. In the literature on this subject time inconsistency is usually explained in terms of policymakers bidding for votes by breaking implied or actual past commitments. Common examples are rent control—there are more voting tenants than voting landlords; inflationary policies that reduce the real value of outstanding debts, transferring wealth from creditors to debtors; and the imposition of special taxes such as the windfall profits tax on oil.

Policymakers often feel aggrieved when they are charged with deliberate pursuit of time-inconsistent policies; to them the process often seems to be one of being forced by the politics of the situation to take such actions as a defensive matter. Politicians out of power press for adoption of time-inconsistent policies. Those in office find that they must respond in order to retain political support. The fundamental problem is not that devious officials plot these damaging policies but that they are driven to pursue them by the political appeal of such policies when political opponents offer them to the electorate.

However clear public officials may be in their understanding of the undesirable characteristics of the policies they are pursuing, it is nevertheless necessary that the policies be justified in the court of public opinion. Some justifications are genuine and some are stratagems designed to deflect criticism. In the case of time-inconsistent policies, it is essential that the inconsistency be hidden. Inconsistencies can be hidden by providing justifications involving great technical complexity and by insisting that rules, standards, and regularities designed to eliminate time inconsistency are undesirable because they reduce "flexibility" and eliminate optimal responses to changed circumstances.

Without rules and standards, there is great difficulty in demonstrating time inconsistency in public debates. The unwillingness of the Federal Reserve to adhere to a clear money growth rule reflects in

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part its difficult situation in these public debates. If the Federal Reserve were to adopt a rule before such a rule were generally supported in the body politic, how could it defend itself when political opponents attacked and argued that there would be manifest advantages to a different monetary policy? It must be emphasized that the essence of this problem is that the short-run gains really do exist. It is not easy to enter public debates on the side of an unchanged policy when unemployment has risen by several million over the last few months and your arguments depend on asserted long-run gains and abstract principles.

The observable consequences of the poor public understanding of monetary policy issues are several. There is a lag in adjusting monetary policy to changed business conditions. This lag produces the procyclical behavior of the money stock and of the spread between the federal funds rate and the discount rate. The procyclical behavior of monetary policy has been known for many years, but there is no sign whatsoever that the process is changing. The knowledge that economists have accumulated about the economics of this process has had little or no effect in changing the policy process itself. As a nation, we continue to make the same monetary policy mistakes over and over and over again.

There is a peculiar market expectations constraint on the way monetary policy is adjusted. When inflation is high, the Fed believes that it cannot allow interest rates to fall "too" quickly until unemployment has replaced inflation as the number one problem. Otherwise, market expectations about monetary policy would be violated and Fed credibility would suffer as it appeared that the "fight against inflation" was being abandoned. That appearance would create political problems for the Fed and might add to the difficulty of bringing down inflation in an orderly way. Similarly, when unemployment is the number one problem the Fed must tread gingerly in allowing interest rates to rise for fear that "too" big a change will lead to market expectations that the policy might not be politically sustainable.

Market expectations interact with the political constraints on policy. Roughly speaking, perhaps the best way to put the point is that maintaining political support requires that policy "look right"—policy must not be grossly counter-intuitive to the conventional intuition.

Finally, monetary policy often has asymmetrical characteristics that reflect the interplay of Fed intentions and market and political expectations. When unemployment is the number one problem, errors in controlling the money stock on the low side tend to be soon offset by higher money growth, but errors on the high side are not offset by lower money growth. In the terminology of the monetary targeting

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literature, base drift is asymmetrical with the upside deviations of money from target being accommodated and the downside deviations being offset. The same process is at work when inflation is the number one problem. In this case, base drift runs in the other direction, but for exactly the same analytical reasons. Examples of such periods are the second halves of 1974 and 1981.

These asymmetries are sometimes incorporated quite explicitly in the policy directive sent by the Federal Open Market Committee (FOMC) to the open market desk at the Federal Reserve Bank of New York. The desk may be instructed to accommodate money growth on the high side but to move promptly should money growth be lower than projected, or vice versa. When the market learns that the FOMC has introduced an asymmetrical instruction into the policy directive, interest rates may jump discretely up or down. The reason is that the asymmetry is equivalent to the Federal Reserve saying that it will, for example, permit interest rates to rise readily under certain circumstances but not to fall readily. That information changes the near-term expected value of money market interest rates by changing the shape of the probability distribution of interest rate changes.

Although the Federal Reserve would never make a flat announcement that interest rates should rise, an asymmetric policy instruction is the operational equivalent of such an announcement. The FOMC does not release to the public the policy directive adopted at one meeting until after the next meeting, at which time the new directive supersedes the old one. Nevertheless, it seems likely that the way in which the open market desk conducts open market operations provides clues to astute Fed watchers when an asymmetry has been introduced to the directive. Otherwise inexplicable interest rate changes may occur when the market guesses that the Fed has introduced or eliminated an asymmetry in its open market operations.

Political Gaming

Much of what is said and done in Washington can be understood only within the context of political gaming—the thrust and parry, move and countermove, of political rivals and agencies as they attempt to improve their political positions. Actions that seem peculiar become perfectly clear once the inside story of personal rivalries and of the deals that are struck becomes known.

One of the most obvious features of political gaming is the practice of scape-goating. The common human trait of resistance to admitting mistakes is especially important for government agencies. The polit-

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ical power and even survival of agencies depends on maintaining an image of competence. No one should underestimate the potential for quirky and fundamentally unimportant episodes to affect an agency's image and therefore its public support. All agencies, including the Federal Reserve, do their best to avoid damaging incidents, to take credit for the good things that happen, and to blame others, either openly or by inference, for the bad things that happen.

It is extremely difficult to obtain from the Federal Reserve a simple yes or no answer to a question such as: "In retrospect, and all things considered, would it have been better for the U.S. economy if M1 growth had been one percentage point lower than it actually was each year 1977–1979?" However, it is also worth emphasizing that questions of this kind are rarely asked of the Federal Reserve by the Congress.

Several reasons come to mind as to why such questions are so rarely asked. For one, a member of the Congress who pressured the Fed to hold interest rates down in the late 1970s is in a poor position to ask now why money growth was not lower. For another, members of Congress may want to retain their freedom to scape-goat the Federal Reserve in the future.

The present arrangements for congressional oversight of the Federal Reserve serve the political interests of both the Fed and the Congress because these arrangements permit both bodies a relatively easy escape from answering hard questions and taking real positions on important monetary policy issues. The present extensive congressional oversight hearings provide the appearance of careful congressional scrutiny of Federal Reserve policy without in fact changing very much what the Federal Reserve actually does.

There are considerable political rewards for the politician who takes on a "bad" agency and wins a highly visible battle. However, to win these political battles the public must have concerns about the competence of an agency, and the critics must maintain a "reform" image. However, the game is a tricky one because anyone attacking a "sound" agency may be viewed as irresponsible and as acting simply for "political" reasons. Such a person may be easily discredited by the agency claiming that the attacker is irresponsible and simply scape-goating. As emphasized earlier, the political combat is carried on largely at the level of intentions, motives, and integrity; the merits of a case are of distinctly secondary importance.

Over the years the Federal Reserve has been extraordinarily successful in maintaining the high ground in these political debates. One of the reasons is that many of the attacks on the Fed *have* been irresponsible. The focus of these political attacks is almost always on

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the level of interest rates, and the Federal Reserve has been extremely successful in fending off such attacks.

One of the principal stratagems pursued by the Federal Reserve has been to avoid appearing responsible for interest rate changes. After the Treasury-Federal Reserve Accord of 1951, the Fed adopted the "bills only" policy in its open market operations. By confining its open market interventions to the short end of the maturity spectrum, the Fed was able to claim that it had nothing to do with fluctuations of long-term interest rates. Increases in bond yields could not be the Fed's fault. That policy reduced a possible pressure point on the Fed to resume the pegging of long-term interest rates.

Federal Reserve market intervention to control short-term interest rates became increasingly explicit after the Accord. Starting in 1967 the FOMC set narrow limits on day-to-day fluctuations of the federal funds rate, and the numerical "tolerance range" for the funds rate was published with only a short lag after the mid-1970s. In October 1979 the Federal Reserve moved to a system it described as "non-borrowed reserves" control. Under this system much wider day-to-day fluctuations in interest rates were permitted, and the Fed insisted that interest rates were being set entirely by market forces.

After 1979 controversy grew about interest rate volatility, the high average level of interest rates, and the protracted 1981–82 recession. Responding to this criticism, in the fall of 1982 the Fed changed its policy procedures again by adopting what it described as a "borrowed reserves" target.

Under this new policy the day-to-day behavior of the federal funds rate has been almost identical to that under the earlier policy of explicitly pegging the funds rate in the short run. This outcome is not surprising. It is well known in the academic literature that if the bank borrowing function is stable a borrowed reserves target is *identical* to direct targeting of the federal funds rate. Nevertheless, the Fed has been at pains to insist that the policies followed after the fall of 1982 have not involved close control over money market interest rates on a day-to-day basis.

In addition to conducting open market operations in ways that minimize the appearance of influence over interest rates, the Federal Reserve has continuously emphasized the role of non-monetary causes of interest rate changes. This approach reflects the genuine professional views of the members of the Board of Governors and its staff. At least since the Accord, the Board has put much more emphasis on the role of budget deficits in determining nominal interest rates than monetarists think appropriate. There is a genuine difference of professional opinion here, but having said that it is also fair to observe

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that monetarists do not fare well on the Board staff. The monetarist emphasis on the role of inflation and inflation expectations—both of which are largely the result of money growth—in determining nominal interest rates is a threat to the institution. In public speeches and congressional testimony, Federal Reserve emphasis on fiscal policy influences on interest rates makes effective use of public myths about budget deficits to deflect attention away from Federal Reserve policy.

In all of these ways the Federal Reserve has been successful over the years in blunting the charges of critics who assert that the Fed is responsible for an unduly high level of interest rates. The defense appears credible to the public by virtue of the fact that the financial institutions themselves seem more directly involved with interest rate determination than does the Federal Reserve. For this reason the critics of high interest rates have often found the financial institutions a more tempting target of their charges than the Federal Reserve. Federal Reserve officials have on occasion made comments that tend to support these views and have rarely come out with ringing defenses of financial institutions when rates are rising. After all, if the institutions are not to blame, who is? There is no point to encouraging political enemies to ask that question.

The one visible interest rate set by the Federal Reserve is the discount rate. Here again the Fed has played its hand very successfully. Discount rate changes generally follow changes in market rates, making it possible for the Fed to claim that the discount rate is being adjusted to maintain alignment with market rates. However, the Fed has insisted on maintaining independent control over the discount rate—rather than tying it to market rates—in order to have a visible policy instrument to adjust when it appears necessary to broadcast a message about Fed concern and action to deal with unfortunate economic conditions. When the cry is abroad to "do something," a change in the discount rate is the ideal policy action.

These comments should most definitely not be read as reflecting a view on my part that the Federal Reserve should target interest rates. The point is that political pressures on the Federal Reserve are concentrated on interest rate issues. Barring scandal—and the Fed has an excellent record of avoiding both the actuality and appearance of scandal—the institution is politically safe as long as interest rates are trending down. In reconciling a sound monetary policy with the political realities, interest rates are *the* issue. To the extent that the Fed can avoid taking responsibility for interest rate changes it can avoid being backed into a political corner where it might be forced to attempt to limit interest rate increases. Its success in this

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enterprise is responsible for monetary policy being as good as it has been. Monetarist critics, of course, believe that policy could have been much better.

As part of its effort to maintain its independence, the Federal Reserve engages in extensive efforts to explain economic conditions as being the result of disturbances beyond Federal Reserve control. Federal Reserve speeches and testimony generally devote far more space to analysis of fiscal policy and non-monetary influences on economic conditions than to monetary analysis. Space devoted to monetary analysis is ordinarily concentrated on why money demand shifts and other irregularities require a "flexible" monetary policy.

The Federal Reserve has been so successful over the years in maintaining the political high ground that alternative views are usually greeted skeptically in the public debates. Federal Reserve views are in fact often correct, and where they are not they always have a ring of great plausibility. Moreover, administration and congressional criticisms of the Fed are generally dismissed on the ground that they are politically motivated.

For a recent example of this phenomenon, the Reagan administration has quite obviously been on the political defensive on the budget deficit issue, and everyone knows that there is political advantage for the administration to deny that budget deficits cause high real rates of interest. Consequently, the administration's position that budget deficits are not responsible for high real rates of interest has lacked credibility and has been dismissed out of hand by many observers. Indeed, the case has been so lacking in surface plausibility and the political motivations for making it have seemed so obvious that many observers have never even considered the possibility that the position might have merit. The substantive conclusion has been decided on the basis of the administration's motives. For these reasons, the administration's attempts to pin the interest rate tail on the Federal Reserve donkey have never gotten very far in the public debates.

Another aspect of political gamesmanship has made it relatively easy for the Fed to maintain the high ground. On the principle that the "enemy of my enemy is my friend" the political party out of the White House almost always has an incentive to side with the Fed. The Fed has been very successful in pursuing policies that do not provide an opportunity for both political parties to line up on the same side of an issue with the Fed on the other side. For example, when interest rates are rising in a presidential election year the Fed almost invariably permits money growth to rise also. The party out of power can then attack the party in power for rising interest rates,

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and the party in power cannot deflect blame to the Federal Reserve by pointing to falling money growth. Conversely, when interest rates fall in a presidential election year, money growth usually falls also so that the opposition party cannot charge that the Fed is rigging the election for the party in power.

Discussing these political gaming issues almost always has an unseemly air about it. My purpose is not to disparage the Federal Reserve System, but to direct scholarly attention to how this process works. Successful political leaders and successful agencies must engage in political gaming. That is what politics is all about. Economists should not discuss economic policy entirely under the assumption that politics does not exist, or is unworthy of scholarly attention. There are, presumably, laws to political behavior in democracies, and those laws should be regarded as constraints that are every bit as important to the policymakers in pursuing their objectives as are the constraints imposed by the structure of the economy.

Conclusion

I am convinced that under the present institutional arrangements controlling monetary policy decisions there is no reason to expect that we have seen the last of stop-go monetary policy. I cannot predict whether the next episode will be stop or go. The case for go is that during the present business cycle expansion we have not yet seen a period of flat real growth and/or rising interest rates that could lead to great pressure on the Federal Reserve to raise money growth. Slow real GNP growth in 1962 and 1976 led to monetary policy decisions that accelerated money growth and eventually led to inflation. Rising interest rates in 1967, 1972, and 1977 led to higher money growth that accelerated inflation.

The case for stop is that the memory of the recent inflation is still very strong. Many observers are now willing to take risks on the side of restrictive monetary policy rather than take the chance of reigniting inflation. With these attitudes, a decline of inflation expectations leading to a decline of interest rates could generate excessively low money growth because of Fed concerns that interest rates not fall "too" rapidly. In the late 1950s public attitudes toward inflation produced a monetary policy biased on the side of restriction. The result was that the recovery from the 1957–58 recession was aborted by very low money growth in the second half of 1959. Later, of course, the memory of the back-to-back recessions in 1957–58 and 1960–61 created an inflationary bias to monetary policy.

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There must be a better way. Greater congressional control over day-to-day monetary management would not, however, be useful. The political process that has given us a procyclical monetary policy operates with a vengeance at the congressional level. We need monetary rules and standards rather than new management.

Some observers believe that greater Federal Reserve independence would prevent the political interference with monetary policy of the type described in this paper. But I do not see how anyone committed to democratic government could advocate a central bank completely free of democratic political controls. Greater independence is a nonstarter; it should not happen and it will not happen.

The crux of the matter, I believe, is that relying on political will and good management to improve monetary policy is like relying on the social responsibility of firms to clean up pollution. Just as the responsible firm in a pollution-prone industry will be driven out of business by less responsible firms, so also may responsible political officials be driven out of the political marketplace by less responsible officials when certain kinds of policy decisions are made on a case-by-case basis.

If this view seems farfetched, consider the position of the Federal Reserve System if, during a period of rising interest rates, the President were to make a strong public statement insisting that the Fed should not increase the discount rate. Is it imaginable that the Federal Reserve would increase the discount rate the very next day? Is it unimaginable that the President, or some other important official such as the Speaker of the House of Representatives, might correctly see short-run political advantage to making such a statement?

This example is not farfetched. In December 1966 there was a highly public battle between President Johnson and Federal Reserve Chairman Martin. If Johnson had attacked the Federal Reserve before the discount rate increase instead of after, the Fed would almost surely have delayed its action. For another example, it is well known that the Federal Reserve had great misgivings about President Carter's 1980 request that the Fed impose credit controls. Could the Federal Reserve have defied President Carter by refusing to impose controls? Could the Federal Reserve have cut its discount rate in September 1974 when President Ford was convening his "Whip Inflation Now" meeting in Washington?

The answers to these questions are obvious. And it is important to note that in the event of Federal Reserve defiance of the President or Congress the public debate would turn away from the merits of the policy action itself to the power of the Federal Reserve. In these situations the only responsible thing for the Federal Reserve to do

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is to acquiesce to the greater political power and to muddle along making the best of a bad situation. After a time, a changed climate of opinion opens up room for maneuver. The Federal Reserve can then argue that changed economic conditions rather than defiance of the President or the Congress justifies changing policy. But this process is obviously not without its costs. Needed policy actions may be delayed, and policy may for a time feed an inflation or depress an already contracting economy.

The end result of this political process is a sequence of monetary policy outcomes characterized by myopia and time inconsistency. These are not the results intended by the Federal Reserve, but at an abstract level they can be analyzed "as if" they were. This process will continue until a policy rule of some sort replaces policy discretion. I see no basis for a rule other than one specifying control of some monetary aggregate within some bounds. Only a rule constraining the creation of money can lead to a determinate price level and an end to the procyclical monetary policy that has afflicted the U.S. economy for so many years.

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AVOIDABLE UNCERTAINTY AND THE EFFECTS OF MONETARY POLICY: WHY EVEN EXPERTS CAN'T FORECAST

David I. Meiselman

If Federal Reserve goals were clearly stated or understood, which they are not, we would have a much more informed and confident basis for making predictions about Fed actions. The absence of stable, predictable targets, goals, and rules results in general inability to understand and to predict Federal Reserve behavior. It thereby leads to general inability to forecast and predict the consequences of Fed actions, such as the money stock, inflation, interest rates, and the like. Inability to forecast and to predict Fed behavior, much of which is caused by the Fed itself, results in increased and *avoidable* uncertainty that is both costly and pervasive.

An Application of the Heisenberg Principle

Much of the recent research in monetary economics emphasizes the crucial importance of policy surprises on economic outcomes. For monetary policy, this means that fully anticipated money growth affects only the price level, essentially only the real value of money, itself. It is unanticipated money growth that alters interest rates and the real variables that cause real effects, including business cycles. This is how the rational expectations view leads to an emphasis on a money supply rule, especially a rule consistent with stable prices. But, such a rule would then limit, even deny, the Federal Reserve's ability to affect financial markets and real economic outcomes such as employment and output.

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This is why, lacking a monetary rule, market uncertainty about current and future Fed policies augments the impact of policy actions, themselves, precisely because each action has a larger surprise component. This also means that the Federal Reserve has strong, compelling incentives to increase uncertainty about its policies and actions in order to enhance its own economic and public policy role and power. This may also be why the Fed is so determined to prevent or sabotage any monetary rule, including rules constraining money growth to the slow, stable, and predictable path that the early Reagan administration supported but has since abandoned.

This also explains the essentially universal inability to consistently forecast Fed policies. Given the impact of monetary policy surprises on financial and real variables, it also helps to explain the parallel general inability to make dependable short-term forecasts of financial markets and business conditions, particularly given the difficulty, perhaps the impossibility, of knowing what policies and forecasts have already been discounted and adjusted for in financial and other markets. It may also explain the variable lags in the observed effects of measured monetary change.

The usual scientific investigation attempts to uncover nature's secrets and to make natural phenomena predictable. The Heisenberg Principle aside, most of the time nature does not act any differently when it is observed. This paradigm is surely inappropriate for scientific investigations of the Federal Reserve and other agencies controlled by human beings whose behavior is not independent of the investigator and of public understanding. Indeed, once observed, behavior tends to change. Thus, it seems to me that a variety of the Heisenberg Principle—that the act of observation itself changes the observed phenomenon—applies to the formation of and response to monetary policies.[1]

Because increased uncertainty in policy surprises increases instability, the Federal Reserve creates or at least adds to the very problems it purports to solve. Survival of the Federal Reserve in its current discretionary form would seem to require destabilizing the economy, a form of crisis-creation control. Of course, some well-intentioned observers, noting the persistence of instability and inflation, confuse cause and effect when they contend that we need the Federal Reserve discretion to dampen stability and to battle inflation.

[1]It would seem that this same principle applies in other areas of economic policy as well.

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The Enigmatic Fed

Turning more specifically to Poole's (1986) paper, I have a wide area of agreement with it. I share his conclusion that a policy rule rather than discretion is desirable, that the rule should be a monetary aggregate within some bounds, and that "only a rule constraining the creation of money can lead to a determinant price level and to an end to the procyclical monetary policy that has afflicted the U.S. economy for so many years."

I also share some of Poole's puzzlement about Federal Reserve "motives." He admits that, after 25 years of studying the Fed and monetary policy, with distinction, not quite grasping the Fed's motives. Most scholars, including those who have been Fed watching for even more than 25 years, share the same puzzlement.

Indeed, the poor record of forecasts of Fed behavior and the frustration of dedicating a lifetime to research trying to predict the Fed and still having to admit a high degree of failure reminds me of the anguished remark of Sigmund Freud. The story goes that after a lifetime of actual, or claimed, success in uncovering the mysteries of the human psyche Freud was lead to exclaim about the other half of the human race, "After over 50 years of research into the human soul there is one question I have never been able to answer. What does a woman want? Dear God, what does she want?"

Poole asks, "What does the Fed really want?" His answer seems to be: First, the Fed wants independence. Independence is one of the dominant, if not the dominant, goal of the Fed's institutional behavior. After close to three-quarters of a century since the 1913 Federal Reserve Act, the Fed has been uniquely successful in achieving and maintaining the goal of independence. But what else does the Fed *really* want?

Poole mentions "lack of scandal." The Fed appears to have done very well on this score, too, even down to the absence of tell-tale signs, even allegations, of foreign source cuff links among members of the open market committee. If the complete truth were known, I suspect that fewer than the average (for government employees) number of Fed pencils turn up in Federal Reserve employees' homes. If there is any scandal, it would have to be about monetary and regulatory policies rather than missing pencils or lavish perquisites for Fed employees.

Poole also asserts that the Fed also wants to be viewed as "well-meaning . . . and interested only in serving the public interest." My impression is that on this count, too, the Fed usually comes up with a high score. Many people, even most people who matter, believe the Fed has good intentions.

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But good intentions are not enough. As the old epigram goes, the road to hell is paved with good intentions. Nor is it enough to state, as the 1968 bumper sticker did about Hubert Humphrey, "He Cares." We do not choose our brain surgeons this way, and even social workers do not choose their automobile mechanics for the mechanics' caring qualities. Nor should we choose central bankers mainly for their caring qualities, either.

Results matter. Judged by the traditional, as distinct from personal or institutional, policy objectives Poole lists, such as low inflation, full employment and financial stability, actual Fed performance has ranged from fair to calamitous failure.

In view of the Fed's generally poor record, the greater puzzle is why the Fed has such a great reputation. Inflation, interest rates, and unemployment are currently down from peak levels, and we are in the third year of a business cycle expansion. The Fed now looks better, or at least not as bad, as they did a few years ago. Thus, much criticism of the Fed has been muted, and so have calls for fundamental change in our monetary arrangements.

The improved results are welcome. However, I do not believe that they are permanent or more than still another passing phase in our monetary history. Given the absence of any fundamental change in incentives (which is what Poole may mean by "motives") or any significant change in constraints or in understanding, the same institution is likely to exhibit the same general pattern of behavior leading to the same generally unsatisfactory pattern of results. Consider also that there has been little change of personnel at the Fed even after the entire first term of a president widely understood to hold economic and monetary policy views markedly different from his predecessor. It is difficult to hold out much possibility of change resulting from new presidential appointments if the results of four years of a Reagan presidency were the reappointment of Carter's appointee, Volcker, and the appointment of but two of seven Fed governors, the marginal impact of which remains to be seen. And, the Fed staff is essentially unchanged, too.

A Political-Bureaucratic Institution

Bear in mind that the Fed is not a university. Neither is the Fed a research institute, nor is it a think tank. And the Fed is surely not a caring, loving parent. The Fed is not singularly devoted to stable prices, nor to full employment, nor to any other economic goal or set of goals precisely because it is a political, bureaucratic institution with political, bureaucratic goals, which are essentially neither eco-

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nomic nor altruistic. Thus, the Fed is best analyzed as a political, bureaucratic institution, using the best tools at our disposal, including the public choice analysis.

As a political institution the Fed must choose among alternative combinations of goals and alternative sets of policy instruments and targets. These goals shift from time to time. To survive, and the Fed is an outstanding survivor, the Fed's goals, as well as their instruments and targets, also change as circumstances, including political considerations, change.

This is why I suspect that one reason there has been very little conflict between the Fed and the White House is that the Fed typically gives the White House close to whatever monetary policy the White House wants. Hence, the "political monetary cycle" emerges as a creature of the existing democratic-activist monetary regime.[2] The arrangement also suits the Executive Branch because the president can more readily blame the Fed when things go wrong and accept credit for good results.

To prevent conflict with the Congress, the Fed has been very successful in a combination of ploys. First is to keep Congress in the dark. To confound the Congress, the Fed typically is successful in diverting attention from money and bank reserves that the Fed does control to fiscal policy, which the Fed does not control.

Second, the Fed engages in artful compromise and gaming, but never gives up essential prerogatives, especially independence. The Fed has endured with independence, by statutory independence of the Executive Branch, but not of the Congress, because Congress has never really exercised its constitutional authority and responsibility for monetary policy. And, under present circumstances, I have difficulty seeing how Congress could, even if it wished to do so. Like the White House, the Congress is not wholly an unwilling or an unwitting accomplice of the Fed in these exercises because present arrangements enable the Congress to shed responsibility for the results of Fed actions. Indeed, virtually all of the legislative and oversight attention of the banking committees, themselves, is directed to financial market structure, housing, regulation of financial institutions, and the like rather than the Federal Reserve's conduct of monetary policy per se.

The Fed's Dread of Accountability

I return to the puzzlement of what the Fed really wants. I believe that there is a solution to the apparent paradox. The solution to the

[2]See Meiselman (1984).

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paradox is as follows. The Fed dreads accountability. The Fed resists a rule, and the Fed wants to make sure that its own actions cannot be successfully forecast or predicted. We have learned that anticipated changes in money affect only prices. The ability to surprise markets gives the Fed enormous ability to alter a wide range of economic and financial circumstances.

This very lack of policy predictability enhances the power and importance of the Fed. If we could predict Fed actions, that power, and the Fed's ability to change real variables, would correspondingly diminish as markets would then discount future Fed actions along lines elaborated by rational expectations theorists and others. Thus, uncertainty about current and future monetary policy and money growth is a necessary condition for significant Fed power and authority.

Both to enhance their own power and to protect themselves from accountability and a diminution of their impact, the Fed must remain a puzzle, even to those who devote their lives to studying the Fed. For, as soon as its policies can be predicted, the Fed will change to make itself and its policies unpredictable once again, that is, unless and until required to do so by statutory or constitutional change. This is why, it seems to me, predictable monetary actions and a monetary rule are essential. This is also why the Federal Reserve battles a monetary rule with such vigor and determination.

The lack of a systematic and hence predictable monetary policy and general inability to predict and to forecast Fed behavior itself creates the uncertainty that gives real effects to changes in nominal money. It thereby results in real power to the Fed far beyond its ability to control the price level, alone.

Finally, many formal critiques of monetary policy, especially those derived from a rational expectation orientation, conclude that systematic monetary policy has no real effects and alters only the price level. These "irrelevance" analytical results apply to a world of perfect certainty and require the presence of known, predictable and hence discounted Fed acts, including predictable future money. If the best and the brightest, and the most specialized, including Poole, cannot accurately predict what the Fed will do, how can the market as a whole dependably discount future Fed policies? The absence of systematic, predictable monetary policy renders this "irrelevance" analytical result substantively irrelevant. Moreover, it is highly unlikely that the Fed would ever voluntarily give up the discretion and the uncertainty that result from Fed policies that give the Fed such power and prominence and shield it from accountability.

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DEFICITS, INTEREST RATES, AND MONETARY POLICY

Karl Brunner

I. The Deficit Syndrome

The deficit of the federal budget dominates attention of the public arena. The process began with President Carter's ill-fated budget announcement in February 1980. The response of the bond market revealed at the time the public's increasing doubts and apprehensions about the course of fiscal policy. Concern about the deficit approached a feverish pitch since 1982. Wall Street "economists," senators, congressmen, pundits, and the media in general attribute to the budget deficit an array of dismal effects. We heard in 1982 that the deficit would obstruct any incipient recovery. This prediction has been thoroughly falsified within the first four quarters of the upswing. So it was replaced by a new prediction. The deficit is supposed to halt the recovery in the near future and push the economy into a new recession. The deficit threatens us moreover with higher inflation. A direct link seems to be asserted connecting inflation with the deficit. Lastly, the deficit seems to be the cause of double-digit nominal interest rates and the highest real rates since the 1930s. Such interest rates produce apparently an "overvalued dollar" encouraging imports and lowering our exports. This pattern reduces, so we hear, our welfare, as it lowers domestic employment and output below the otherwise achievable level. And the close interdependence of national capital markets transmits the effects of the "high interest policy" pursued by the U.S. government, represented by a "loose" fiscal and "tight" monetary policy, to all major nations. This vision offers European officials an excellent opportunity to blame U.S. policy for their economic troubles.

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The public arena seems to find this story plausible. But many beliefs are "plausible," and economic analysis nevertheless offers no support for these fashionable and contentious inventions. Policymaking guided by this political vision of our economic problem will at best shift the nature of the problem with little improvement in our future economic prospects. Thus, at this stage clarification of the nature of the issues associated with the budget deficit seems particularly urgent and important. We may immediately dispose of the most egregious error without long arguments. We can assert with some categorical definiteness that deficits per se do not create inflation. It should be noted that the "disinflationary phase" of the past four years occurred concurrently with the largest peacetime deficits ever observed in U.S. history. Most particularly, our inflationary experience of the last 18 years was not caused by the deficit. Similarly, neither economic analysis nor empirical evidence support the contention that high interest rates raise the exchange rate or that deficits produce recessions.

The wide array of mistaken beliefs and misconceived apprehensions obscures, unfortunately, the real problems associated with the budget and the deficit. This paper addresses some of these problems. Section II emphasizes the significance of the budget irrespective of the deficit and stresses the need for an economically relevant measure of the deficit. The following section examines the economic relevance of the stock of real debt. Section IV explores the relation between the deficit and interest rates. The "anatomy" of interest rates in section V further investigates the (indirect) channels linking deficits with interest rates. Lastly, the long-run effect of a deficit policy on the monetary regime is examined in section VI.

II. The Importance of the Budget

Economic analysis offers little support for the single-minded attention concentrated on deficits. In contrast, it informs us that fiscal policy exerts in various ways substantial real effects on output and the formation of human or nonhuman capital. We need to look beyond the budget deficit at the whole fiscal policy pursued by the government.

The ultimate fiscal instruments affecting the economy are the magnitude and characteristics of expenditures on goods and services, the pattern of the effective tax schedule including both positive and negative taxes (i.e., transfers), the true value of the government's liabilities, and possibly the true value of the government's assets. A systematic investigation of the government's effect on asset markets and resource allocations attends to all those dimensions beyond the

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officially measured deficit. An analysis directed to the long-term implication of fiscal policy, moreover, should remove purely cyclic components among expenditures and revenues. The cyclic components probably contributed recently to raise the measured deficit. The inflation tax imposed on outstanding government liabilities is, on the other hand, usually omitted in the standard accounting measures. This tax reflects the implicit revenue accruing to the government as a result of the inflation-induced real depreciation of nominal liabilities. The rate of inflation is the tax rate and the stock of real-valued debt the tax base. Such an adjustment in the deficit is unavoidable whenever we wish to obtain an economically significant measure. Long-run effects of the deficit are, if they occur at all, transmitted via changes in the stock of real debt and the composition of real wealth. Changes in the *real* value of debt are thus important in this context. A correct measure of the current (real) deficit expressed as the change in the real value of debt must subtract, beyond the ordinary tax revenues, also the inflation tax from total government expenditures. A proper measure of the nominal deficit is then obtained by multiplying the real deficit with the current price level. This corrected measure is below the official measure by an amount equal to the current inflation rate multiplied by the outstanding nominal debt. This point will be made more explicit in section VI.

The listing of the government's liabilities is not exhausted by its official debt. Pensions, the social security system, and various guarantee schemes impose commitments for future outlays on the government. The present value of these commitments is a political and economic fact just as real as the official debt. It is noteworthy in this context that the apprehension on the political and media market, or Wall Street, seems not to include the economic reality of "unfunded liabilities."

Probing beyond the official measure of deficits alerts us to the real significance of fiscal policy. Decisions bearing on spending and tax schedules modify the allocation of our resources and the normal level of output. Different fiscal choices affect the division of output between investment and consumption. The incentives or disincentives associated with spending patterns and tax schedules affect savings, investment in productive capital (both human and nonhuman), and socially nonproductive investment in the political process. The latter increases with the magnitude of spending and the complexity of tax schedules. These effects occur independently of the deficit and powerfully condition our economy. The attention concentrated on the deficit alone thus obscures to a large extent major problems associ-

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ated with budget policies. The distortionary character of taxes with the corresponding welfare losses implies that a persistent deficit is not necessarily inferior to *any* tax increase. But distortionary consequences of fiscal policy in the use of real resources are not confined to taxes. The government's expenditures produce similar effects. The welfare losses resulting from expenditure programs can occasionally exceed, as in the case of Great Britain, the welfare losses associated with taxes. Controls over the magnitude and nature of expenditure programs emerge with an importance beyond "the need to lower the deficit." The consequences of expenditures irrespective of their financing deserve more informed attention in the public arena.

III. The Relevance of the Debt

An overview assessment of fiscal policy outlined in the previous section suggests the occurrence of separate welfare losses traceable to taxes, expenditures, and deficit finance. The first two strands of possible (and probable) welfare losses are generally accepted in economic analysis. But the last was seriously disputed over the past 10 years. The "Ricardo theorem," recently revived by Barro with an extensive and subtle analysis, denies that the mode of financing the budget exerts any significant real effects. The argument is essentially based on an infinite intertemporal budget constraint of households and government. The "unrealistic" assumption of infinitely living households is made operationally significant with the empirical hypothesis of intergenerational altruism. The welfare of each generation includes with its own immediate position also the future welfare of its descendants. This framework includes additionally a crucial assumption to the effect that economic agents fully anticipate with certainty that government borrowing will be repaid from future tax revenues based on lump sum taxes. Current borrowing is thus equivalent to future tax liabilities and the present value of these tax liabilities is equal to the current value of borrowing. The (infinite) intertemporal budget constraint thus implies, under the circumstances, that the division of current budget finance between borrowing and tax revenues does not affect the public's real consumption pattern. Reliance on borrowing calls forth, in view of the anticipated tax liability, a matching increase in the public's saving. Current deficits thus involve, according to the Ricardo-Barro analysis, a redistribution of tax revenues over time. By fully discounting these time shifts the public's behavior essentially offsets the government's fiscal action. Real consumption and real interest rates, consequently, are unaffected by the government choice of financing current expenditures.

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An alternative analysis denies the equivalence of current borrowing and future tax liabilities. The rejection of the "intergenerational altruism" hypothesis suspends the link between current borrowing and future tax liabilities embedded in the "infinitely living household" represented by an infinite intertemporal budget constraint. Increased future tax liabilities due to current debt finance are not offset under the circumstances by compensating private saving involving an intergenerational wealth transfer. Government debt does exert a wealth effect in this case and real debt will influence real interest rates and other real magnitudes.

The hypothesis of "intergenerational altruism" is grounded on the empirical observation of bequests made by the older to the younger generation. But bequests and even operating bequest motives are consistent with intergenerational selfishness (Brunner 1986; Bernheim, Shleifer, and Summers 1985). Bequests may dominantly occur as a component in an intertemporal and intergenerational exchange. The older generation offers potential bequests in exchange for current attention by the younger generation. This analysis appears to survive observation somewhat better than the intergenerational altruism hypothesis. There exists under the latter no good reason why the older generation should concentrate, as the facts indicate, their intergenerational wealth transfers on bequests. Intergenerational altruism simply implies the occurrence of wealth transfers, but the form of the transfer is irrelevant under the hypothesis. It could just as well occur in the form of gifts as in the form of bequests. But bequests dominate the transfer, a fact well explained with the aid of "bequest-motivated intergenerational selfishness."

The real consequences of debt financing associated with the rejection of the "Ricardian thesis" and its explanatory hypothesis do not exhaust the effects of a deficit. Recent discussions surveyed in my paper on "Fiscal Policy in Macro Theory: A Survey and Evaluation" (1986) examine the effect of various risks affecting agents under a deficit policy. Uncertainty of future income and future tax incidence associates real effects with the deficit. Uncertainty about the nature of future taxes conditions moreover the risk embedded in current portfolios. There is no particular reason to expect that this risk is perfectly diversifiable. On the contrary we need to expect that apart from the risk of particular assets the diffuse risk of future tax liabilities will also modify the net return on "safe" assets anchoring the return structure according to the capital asset model. The resulting adjustment in returns and asset values would modify the division of output between consumption and investment.

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IV. Deficits, Debt, and Interest Rates

The previous section concluded that deficits do probably affect interest rates both via the consequences of debt finance and the portfolio risks produced by an uncertain future tax incidence. The mechanism linking deficits with interest rates, however, needs some attention. Two alternative hypotheses with very different implications confront us, one dominates the views of the public arena and the other emerges from economic and finance analysis.

The arguments advanced in the public critique of deficits involve a direct link between current savings, current deficits, and the emerging interest rate. The real interest rate in particular is seen to be determined by a "collision" between supply flows of funds expressed by savings and net foreign capital imports and demand flows made up by the government deficit and the private sector's real investments. This view is clearly presented in the 1984 *Economic Report* prepared by the Council of Economic Advisers. Dr. Emminger, former president of the Deutsche Bundesbank, used this argument in public statements. The media and "Wall Street" dominantly interpret our financial affairs in terms of this argument. It appears to explain plausibly how a larger borrowing requirement by the government sector competes with the private demand for a scarce flow of investable funds supplied by households and foreigners. This competition must be resolved by the rationing function of interest rates. Larger deficits thus raise immediately the level of interest rates. This vision implies moreover that interest rates, once adjusted to a current deficit, will not be influenced by any further repercussions even by a large and persistent deficit. But interest rates are supposed, under the circumstances, to reflect sensitively and immediately the relative magnitude of the *current* deficit.

The plausible appeal of this view in the public arena is unfortunately not justified by economic analysis. We possess here a common professional core unaffected by Keynesian and monetarist disputes about macro-analysis. Our problem reaches actually beyond the bond market. It involves basically the nature of the pricing process of durable objects with comparatively low transaction costs. The prices of such objects formed at any given moment on the market are not determined by a flow of new production encountering a flow of new demands. A price determined in this manner would hardly persist beyond the shortest moment. The low transaction costs enable holders of already existing objects to change their existing possession at any time. A price determined by demand and supply flows generates, under the circumstances, responses among the prior holders of objects.

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These responses together with the inherited stock of objects determine at any moment the prevailing price. This applies in particular whenever the existing stock is large relative to the new production flow. Prices in markets for durable objects with comparatively low transaction costs are thus controlled, not by flows of new production and a corresponding pro-rata allocation of savings, but the interaction between the accumulated stock and the public's willingness to hold this stock. Stock demand and stock supply and not a (new) flow demand and (new) flow supply, determine the current price. The prices of GM shares or of any other shares are consequently not determined by the interaction between new issues and a partial allocation of current savings. Share prices are determined at any moment by investors' willingness to hold the outstanding stock. The same situation describes the bond market, the foreign exchange market, and many commodity markets.

The public's stock demand depends on current and expected future market conditions. Stock demands are in general quite sensitive to expectational states expressing prevalent information and beliefs. Durability of objects and low transaction costs offer expectations substantial room to operate. Keynes recognized this phenomenon quite clearly. He emphasized in particular that a larger variance of expectational patterns raises the transaction volume associated with given price changes, whereas a very small variance of expectational states may produce large price changes at a vanishing transaction volume.

This analysis of a "stock-dominated market" contrasts sharply with the vision of a "flow-dominated market" encountered in the public arena. Some important differences should be noted at this stage. Our intuition immediately alerts us to crucial distinctions in relevant proportions or orders of magnitudes. The proportion of the deficit looms in the context of the flow analysis with an impressive magnitude. This fact was carefully noted in the Council of Economic Advisers' 1984 *Economic Report*. The direct link between deficits and interest rates thus suggests a massive effect on nominal and real rates of interest. The stock analysis conveys a very different sense. Deficits modify interest rates only indirectly. They gradually increase the stock of real debt and interest rates respond to this increase in the stock. But this increase in the stock relative to the inherited stock is modest compared to the savings-deficit proportion. We should expect therefore a smaller impact on interest rates by deficits than is typically suggested by a flow approach.

Closely associated with these aspects bearing on orders of magnitude is an important difference between transitory and permanent

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deficits. A temporary deficit, recognized as such by market participants, produces a negligible effect on interest rates according to the stock analysis. The flow analysis implies on the other hand a substantial rise of interest rates for the duration of the deficit. A permanent deficit produces according to the flow analysis a permanent, once-and-for-all increase of interest rates to a higher level. The stock analysis produces in contrast also a different implication on this point. A permanent, large deficit implies a persistent increase in the stock of real debt per unit of real income, provided inflation remains sufficiently low. This persistent increase produces not just a once-and-for-all rise of interest rates but initiates a persistent upward drift over time in the real rate of interest. A stock analysis thus suggests that the *shorter-run* aspects of a deficit policy pose no serious economic threats. The longer-run implications of a permanent large deficit persistently raising real debt per unit of real income loom on the other hand more seriously than indicated by a flow analysis. These aspects will be examined in greater detail in section VI.

But what is the evidence about the comparative status of the flow and stock analysis? We do know from ample observation that most transactions on "auction markets" (i.e., markets for durable goods with low transaction costs) are associated with shifts in existing portfolios. This fact cannot be reconciled with a flow analysis. A report prepared by the Congressional Budget Office (1984) summarizes the findings of 24 studies. The results are very mixed and offer no ground for a systematic link between current deficits and interest rates. A recent paper by Evans (1985) examines in some detail the possible effects of current deficits on interest rates. The author finds no support for the assertion that deficits raise interest rates.

Much work in the field of finance reinforces the analysis of a stock-dominated price formation on "auction markets." The effects of new information on prices examined in event studies reflect the operation of a mechanism involving an interaction between stock supply and stock demand. These effects cannot be reconciled with a (net) flow approach to price formation in these markets. The (net) flow approach suffers a similar problem when we consider short-run price behavior. Shares and bonds are exchanged and prices formed in the absence of new issues. Neither of these observations can be reconciled with the flow approach. Both phenomena require for a useful explanation a stock approach with its expectational emphasis based on shifting information and beliefs.

V. The Anatomy of Interest Rates

The links between the deficit and market rates of interest require more detailed attention, including some sense of relevant orders of

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magnitude. For our purpose the nominal rate of interest is partitioned into a sum of three components: the basic real rate on default, risk-free government securities; a risk premium reflecting the market's uncertainty about the future course of monetary policy and, thus, the profile of inflation; and lastly, the inflation premium expressing the market's expectation of the inflation rate. The sum of the first two components constitutes the gross real rate of interest. The argument developed here and in section VI indicates that a persistent deficit may be expected to affect nominal interest rates via all three components. But the popular view based on the flow analysis thoroughly fails to comprehend the nature and magnitude of these effects and their relevant mechanisms.

According to Fama (1975), the basic real rate on long-term government bonds averaged about 2.5 percent for most of the postwar period until the early 1970s. This level may be applied as a benchmark to a 1960–64 base period used as a comparison with the current state. We first need an estimate of the effect on the basic real rate attributable to permanent deficits. This permanent deficit is specified as the cumulative stock effect expected by the market over a five-year horizon. Suppose under the circumstances the market expects the stock of real debt to double over this period. The response of the real rate of interest to the increase in the stock of real debt, discounted by the market's expectation to the current interest level, depends on the elasticity of the real rate with respect to the real debt. The asset market analysis, which I have jointly developed over the past decade with Allan Meltzer, implies an elasticity of about 0.6 when supplemented with appropriate structural order constraint. Under the circumstances a 100 percent rise in real debt would raise the basic real rate from 2.5 percent to about 4 percent. In the context of our existing uncertainty bearing on these issues the estimate offered should be understood to define an upper bound. The "Ricardian" estimate of a zero elasticity determines a lower bound.

The second component (i.e., the risk premium) was probably quite negligible in the 1960s. But it emerged in recent years as a significant component of the gross real rate of interest. The announcement of a move toward tighter monetary control in October 1979 was actually followed by a large and pervasive uncertainty concerning the future course of monetary policy. Federal Reserve officials repeatedly supplied conflicting signals and statements. The variance of monetary growth increased and the motion of the money stock approached a random walk. The market responded to this deep uncertainty about the future prospects of inflation with a lower level of bond prices. A risk premium thus became embedded in the gross real rate of interest

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reflecting the purchasing power risk associated with securities expressed in terms of fixed nominal values. Mascaro and Meltzer (1983) estimated this risk premium to be about 2–2.5 percent. Bomhoff (1983) estimated the premium independently at about the same level. The gross real rate thus adds up to about 6–6.5 percent. The remainder of about 5.5–6 percent constitutes the inflation premium. The link between the three components and the deficit can now be characterized with the aid of Table 1. It offers an interpretation for the difference observed between the early 1960s and the early 1980s.

TABLE 1

PARTITIONING THE NOMINAL RATE OF INTEREST

Period	Nominal Rate	Basic Real Rate	Risk Premium	Inflation Premium
1960–64	4	2.5	0.5	1
1983	12	4	2–2.5	5.5–6

Table 1 is not presented with any sense of precision or detailed reliability but it does convey a general sense about the anatomy of interest rates. We should particularly remember that our elasticity estimate for real rates is most probably an upper bound defining the range of our uncertain knowledge. We learn thus that the current effect of a large anticipated increase in the stock of real debt explains at most 1.5 percentage points of the 8 percentage point difference between 1983 and the early 1960s. The *current* deficit thus fails completely to explain both current nominal and real rates. The *permanent* deficit may explain via the stock effect a portion of the higher gross real rate. But even a permanent deficit of the order of magnitude specified cannot explain in terms of the real debt effect the drift from 4 percent to 12 percent in the nominal rate of interest.

A deficit expected by the market to persist into an indefinite future modifies the nominal rate also via the risk premium and the inflation premium. A permanent deficit raises over time the likelihood of irregular but substantial monetary accommodation. We note however that past U.S. data yield no evidence for such a supposition (King and Plosser 1985). Neither do past observations from most European nations offer much support. But until recently the problem could hardly exist. The deficits during peacetime remained comparatively small. The experience of nations with large and persistent deficits does convey a warning however. Italy, Israel, Argentina, Brazil, and others reveal the potential link operated by "the monetization of the deficit." This potential link contributes to maintain, or even raise,

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the level of inflationary expectations and consequently the inflation premium. The likelihood of this feedback from permanent deficits increases, moreover, whenever the stock of real debt per output unit drifts higher over time. The same pattern combined with the tradition of discretionary policymaking also deepens the pervasive uncertainty about the future profile of inflation and affects both the level and volatility of the risk premium. A *permanent* deficit recognized as such by the market does indeed influence interest rates according to our account. The mechanisms establishing the link, however, are radically different from those suggested by the popular flow analysis discussed in a previous section. Flow analysis attributes most of the higher nominal rates to a higher basic real rate. Our analysis, in contrast, attributes the 8 percentage point increase over the 1960–64 period to three factors: dominantly to the inflation premium (about 5.5–6 percentage points); secondly to the risk premium (averaging about 2 percentage points); and lastly to the basic real rate and the pure real debt effect.

It should be emphasized that the discussion of Table 1 presents a maximal possible effect for the deficit on the (gross) real rate of interest. The influence of tax policies has been disregarded thus far. But we should note that investment tax credits and accelerated depreciation substantially raised the net real returns on investments in real assets. Competitive markets would distribute this effect over all asset markets including the bond market. The operation of such an effect would lower the contribution attributable to the deficit working via the first two strands listed in Table 1. Thus, 1–1.5 percentage points could be accounted for in terms of changes in tax policy.

One more aspect needs our attention. The public discussion conveys an impression that *any* increase in the real rate of interest discourages investments and is "bad for the economy." This judgment is quite unwarranted. An increase in the marginal product of real capital simultaneously raises real interest rates and expands real investment. The rise in real rates thus signals a "good thing." The underlying productivity of real capital improves and the potential growth rate rises. The increase in real interest rates resulting from tax policies must be interpreted in this vein. Even the increase in the real rate due to the risk premium cannot without detailed examination be unambiguously interpreted to exert a negative influence on real investment. The inflation risk shaping the second component of bond yields may actually encourage some investments in real assets. This seems to have been the case for housing. Schwert (1977) established that housing offers a good hedge against unanticipated inflation. Some other categories of real assets may share to some

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extent this property. The distortionary effect of nominally based taxes on profits, however, may operate to discourage investment in productive real capital in the face of an uncertain inflationary course. Under the circumstances the same underlying cause would simultaneously raise the real rate and housing investments but lower investments in productive real capital.

VI. The Interrelation Between Fiscal and Monetary Policy

The analysis of the anatomy of nominal interest rates presented here also determines the requirements for a low interest rate policy. A determined noninflationary monetary policy would lower the inflation premium by a substantial amount. But this monetary policy may not persist in the context of a permanent deficit policy. A permanent policy of large deficits measured in terms of the associated growth in real debt imposes a gradual upward drift on the basic real rate. It fosters a high and volatile risk premium and prevents the complete attrition of the inflation premium in response to expectations of eventual monetary accommodation. A noninflationary monetary policy appears thus as a necessary but not as a sufficient condition for comparatively low nominal interest rates. We also need to change our fiscal regime holding the deficit to at most a very small margin of national income.

The issue addresses the long-run interrelation between monetary and fiscal regimes. This problem appeared for the first time in the discussion of the so-called instability of bond-financed deficits in the early 1970s (Brunner 1986). Sargent and Wallace (1981) revived our interest in this matter with a different approach. They questioned the long-run survival of an anti-inflationary monetary regime when confronted with persistent deficits sufficiently large to raise the real stock of government debt relative to real national product. The problem may be explored with the aid of the government's budget constraint:

$$(1) \qquad \overset{0}{S} + \overset{0}{B} = G + TR - TA + iS,$$

where S is the stock of publicly held debt, B is the monetary base, G refers to nominal government expenditures on goods and services, TR designates transfer payments, and TA tax revenues; i should be

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interpreted as the average interest rate on outstanding debt. The budget equation can be translated into the following expression:

$$(2)\quad \overset{0}{s} = \overline{def} + [(rr-n) + (n - \frac{\Delta y}{y}) + (\pi - \frac{\Delta p}{p})]\, s - [(\pi+n) + (\frac{\Delta p}{p} - \pi) + (\frac{\Delta p}{p} - n)]\, b - \overset{0}{b},$$

where s denotes the ratio of real debt to real national income, b represents the volume of base money per unit of nominal national income (i.e., it is the reciprocal of base velocity), and $\overline{def}$ consists of the basic deficit ratio expressed as

$$(3)\quad \overline{def} = \frac{G+TR-TA}{Y},$$

with Y indicating nominal national product. The other signs are: rr = real interest rate, n = normal rate of real growth, y = actual output, π = expected rate of inflation, and p = the price level.

Expression (2) may be considered as a differential equation in s. A stable process requires that the bracketed expression associated with s on the right side be negative. Actual real growth $\Delta y/y$ and actual inflation $\Delta p/p$ sufficiently large would produce a negative sign. But this state is purely transitory. Over the long run relevant for this investigation the sign would be determined by $(rr-n)$, the relation between the real rate and the normal growth rate.

Two distinct states will be considered characterized by the inequalities $rr > n$ and $rr < n$. The first state implies an unstable deficit-debt process whereas the second state determines a stable process. Some subtle issues bearing on the interpretation of the two states are neglected here and discussed elsewhere (Brunner 1986). One might expect that the difference in the dynamic properties would crucially influence our problem and the major conclusion. The subsequent argument will show that this is not the case.

The relevant long-run relations may now be written as

$$(4)\quad \overset{0}{s} = \overline{def} + (rr-n)s - (\pi+n)b.$$

We note that a steady-state condition also requires that $\overset{0}{b} = 0$. This expresses the fact that the price level is fully adjusted at any time to the prevailing volume of the monetary base and b is fully adjusted

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to the ongoing inflation. Under the first state ($rr > n$), the debt-deficit process is unstable. For any initial value $\overset{0}{s} > 0$ the real debt ratio will continuously rise with the persistence of deficits ($\overline{def}$) and low inflation. In this case the stock of real debt per unit of real income at time N satisfies

$$s(N) = s_o + \frac{\overline{def} - (\pi + n)b}{rr - n} [\exp(rr - n)N - 1]. \tag{5}$$

Under the assumption that $\overline{def} > (\pi + n)b$, the stock s grows monotonically with time N. This growth raises the real rate of interest over time in a "non-Ricardian world." Moreover, the persistent deficit and the growing real debt burden foster increasing uncertainty and doubt about the future of a non-inflationary regime. The rising purchasing-power risk reinforces the resulting drift in the real rate. Political pressures on the central bank to accommodate more extensively will also increase over time under the circumstances. Expression (4) shows that s(N) can be lowered by means of an inflationary accommodation. A rising s(N) is moreover expected according to the argument suggested above to raise the likelihood of higher π values. We may suppose for convenience an upper limit $\bar{s}$ acceptable to the political process and explore its implications. This implies according to equation (4) that the inflation rate π must satisfy $\pi \geq \bar{\pi}$ where $\bar{\pi}$ is a minimal benchmark for π depending on the upper limit $\bar{s}$ and described by

$$\bar{\pi} = \frac{\overline{def}}{b} + (rr - n)\frac{\bar{s}}{b} - n. \tag{6}$$

The positive relation between $\bar{\pi}$ and $\bar{s}$ is immediately obvious. A persistent accumulation of the real debt burden can ultimately always be terminated by sufficiently high levels of inflation.

The last expression (6) can be used with two different interpretations according to the nature of the inequality between rr and n. With $rr > n$, it describes the inflation rate required to satisfy an imposed stock of relative real debt $\bar{s}$. Alternatively, with $rr < n$, it determines the equilibrium stock s associated with any predetermined inflation rate, i.e.,

$$s = \frac{\overline{def} - (\pi + n)b}{n - rr}. \tag{7}$$

In the first case fiscal and debt conditions dominate monetary policy and in the second case monetary policy dominates the debt position.

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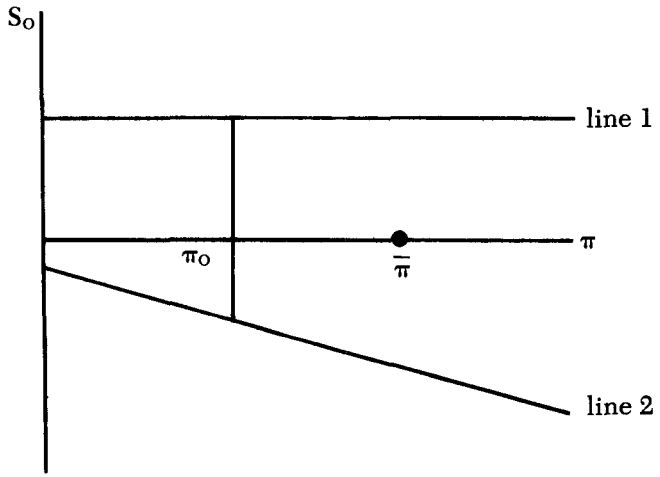
The difference between the two states involving the nature of the adjustment to a constant real debt ratio s can be outlined in terms of Figure 1. The horizontal line 1 represents the component $[\overline{def} + (rr - n)s]$ of $\overset{0}{s}$ and line 2 the component $[-(\pi + n)]b$. Consider now the first state with $rr > n$ and an inflation rate π_o below the inflation rate $\overline{\pi}$ required to hold s constant. This means that the vertical distance between line 1 and the π-axis exceeds the vertical distance between the π-axis and line 2. The rate of change of s is positive under the circumstances and line 1 drifts higher. This drift continues so long as the basic deficit $(\overline{def})$ is maintained and $\pi_o < \overline{\pi}$. In order to stabilize the real debt ratio s, the inflation rate needs to be raised to $\overline{\pi}$, which rises with s. As line 1 is allowed to drift upward, $\overline{\pi}$ shifts further to the right.

FIGURE 1

ADJUSTMENTS TO A CONSTANT REAL DEBT RATIO



In the second state characterized by $rr < n$, the real debt ratio s adjusts in contrast to any predetermined level π_o. Suppose the initial condition is again described by the graph. The real debt ratio s rises under the circumstances and this *lowers* line 1 via $rr - n < 0$. This process persists until the vertical distance between line 1 and the π-axis coincides with the vertical distance between π-axis and line 2.

The significance of the difference in the interrelation between the fiscal and monetary regimes apparently suggested by the previous argument dissipates however upon further examination. Table 2 reveals the problem.

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A glance at Table 2 indicates that deficits of the order experienced or still expected in the United States and Europe would eventually produce—even in the context of a stable process—a massive increase in the real debt ratio beyond the current U.S. level of about .35.

TABLE 2

BASIC DEFICIT RATIO AND EQUILIBRIUM REAL DEBT RATIO UNDER A STABLE PROCESS

Basic Deficit Ratio ($\overline{def}$)	Equilibrium Real-Debt Ratio (s)[a]
.01	.40
.05	2.40
.10	4.90

[a]It is assumed that $\pi = 0$, b = .05 rr = .02, and n = .04.

Important real consequences emerge. Real rates of interest rise and output is shifted from investment to consumption. Normal growth will consequently decline. The negative difference (rr − n) may thus disappear and the economy move into an unstable debt accumulation process. The smaller (absolutely) the initial negative difference (rr − n) and the larger the permanent deficit with the implicit equilibrium real debt ratio, the greater is the likelihood of a change in the sign of the crucial inequality.

The large real debt burden associated with a 5 percent basic deficit, even in the case of a stable process, suggests that the longer-run problem confronting an independent noninflationary monetary regime should not significantly depend on the stability condition. Table 3 demonstrates this point. It summarizes the long-run inflation threat associated with persistent deficits under either state. The inflation rate is computed under the conditions that the real debt ratio (s) is held constant either at .33 or .50 and base money per unit of nominal national income (b) is constant at .05. We notice that irrespective of the stability condition (rr − n) the long-run inflation threat embedded in a permanent basic deficit of 5 percent of gross national product would move us to levels of inflation not yet experienced as a maintained phenomenon in the United States or Europe. Table 3, however, needs to be interpreted somewhat differently under the alternative cases. In the case that rr > n, the π values show the inflation required to hold s = .33 (or = .50). Under the other case we obtain an equilibrium s = .33 (or = .50) for the predetermined π-values.

The argument in this section reveals potential dangers to the political survival of a noninflationary monetary regime in the context of a

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TABLE 3

PERMANENT DEFICITS AND LONG-RUN INFLATION

Basic Deficit Ratio ($\overline{def}$)	Expected Inflation Rate (π)[a]			
	if s = .33 and		if s = .50 and	
	rr > n	rr < n	rr > n	rr < n
.01	39	10	50	7
.05	139	90	150	87
.10	239	190	250	187

[a] π = inflation rate in percent per annum, b = .05, rr = .06 or .02, and n = .03.

substantial permanent deficit. The argument emphasizes that a noninflationary monetary regime and a fiscal regime of permanent deficits beyond some benchmark level are unlikely to coexist in the long-run. One of the two regimes will be adjusted to the other. A political economy approach to the underlying processes suggests that the monetary regime is the more likely to adjust and tends to accommodate the fiscal regime. A viable noninflationary monetary regime thus requires severe constraints on the fiscal regime. But we need to emphasize once more that the experience of Western nations provides thus far, with the exception of Italy and Israel, little evidence bearing on the issue discussed. There was, fortunately perhaps, no occasion for any evidence to emerge. The deficits were mostly small and the real debt burden manageable. We may have entered however a new age of permanent large deficits. But even in this context the behavior of monetary authorities did not conform well over the past few years to the story of the potential threat. It was nevertheless sufficient to generate a pervasive uncertainty about the future course of monetary policy exhibited by the behavior of financial markets. A crucial test still lies in the future. A political miracle balancing the budget may of course prevent its occurrence and confine our evidence to Latin American and Third World nations.

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THE IMPLICATIONS OF BUDGET DEFICITS

Ben E. Laden

Professor Brunner (1986) has provided a far-reaching analysis of the implications of budget deficits with a paper that covers various aspects of the question. He throws a great deal of light on the relationships between deficits and interest rates, as well as on related questions of economic growth, allocation of resources, inflation, and real rates of interest. The most important contribution of this paper is contained in the mathematical analysis presented in the last section. In an extension of the Sargent and Wallace (1981) analysis, Brunner develops a dynamic process relating the stock of federal debt to inflation, real growth, and real interest rates. This approach provides valuable insights into the implications of the deficit.

First, it demonstrates the importance of the relationship between the real interest rate and the normal rate of real growth to the stability of the financial system. When the real rate of interest exceeds the normal growth rate of the economy, which is surely an apt description of the current situation in the United States, the dynamic process is highly unstable, implying that real debt will rise relative to GNP without limit. This analysis confirms the concerns which are widely held about the current fiscal situation.

Second, Brunner's model demonstrates the inflationary implications of permanent deficits of 5 percent of GNP, which is implied by extension of the current services budget. We should not anticipate double-digit inflation; look for triple digits! The conclusion, which Brunner correctly points out, is that a noninflationary monetary policy and a permanent deficit policy cannot coexist in the long run. He concludes, and I concur, that the monetary regime is more likely to be adjusted, leading to higher inflation.

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An extension of Brunner's model to include economic growth and the real interest rate is a logical next step and a promising area of research. By adding explicit assumptions about monetary policy, fiscal policy, and growth of productive capacity, a relatively simple model that concentrates on the joint determination of the real interest rate, inflation, the federal debt, and economic growth should be obtainable. Within such a framework the implications of the deficit for real interest rates, growth, and inflation could be explored more fully within a small model whose properties easily could be demonstrated.

Brunner strongly criticizes the concerns market participants have with the deficit. I have a great deal more respect for the basic instincts of market participants. Their statements of the issues may not always be complete, but they have gone through the best learning process yet devised by man, the market which constantly tells them whether they are right or wrong. Thus I would like to offer an alternative interpretation of what worries Wall Street, an alternative that is quite consistent with Brunner's conclusions.

Wall Street is concerned that the deficits will persist. Merely looking at the current deficit is too simple. At a minimum, it is necessary to adjust for the stage of the business cycle to analyze the implications of the deficit for interest rates (Congressional Budget Office 1985). I attended a meeting in 1981 in New York at which a Treasury Department official presented graphs of interest rates and budget deficits and claimed that there was no relationship. The professional investors at that meeting realized that the relationships are more complicated, that budget deficits and interest rates are affected by other variables, particularly the stage of the business cycle. They also knew that tax changes had reduced future revenues to a degree that had not been paralleled in previous business cycles. Investors have also expressed serious concern about the implications of unfunded liabilities in medical programs and Social Security.

Investors therefore conclude that the political process cannot deal with the problem of controlling government spending. Entrenched special interests cannot easily be made to give up their benefits under a representative democracy, unless and until we can devise more effective means for budgetary control. In the end monetary policy will have to give way to the reality of inflationary pressures emanating from the fiscal regime. Monetary expansion will exceed prudent limits, ensuring serious bouts of inflation in the future.

The precise implications are unclear, but the conclusion is that imbalances in fiscal policy impart an inflationary bias to our economy that evidently cannot be resolved. Consequently, my reading of

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investor concerns indicates that Wall Street would agree with much of Brunner's analysis.

The perspective of market experience, however, leads me to disagree with Brunner's view of the irrelevance of flow analysis. Brunner argues that the simple analysis that high deficits mean higher interest rates influenced market participants to overpredict the inflation rate. In fact, the biggest errors in forecasting the 1984 inflation rate were made by those who relied primarily on a monetarist approach, emphasizing links between monetary growth and inflation. This approach was misleading partly because of distortions from new kinds of deposit instruments and because of the strength of the dollar.

The flow analysis commonly used by market analysts to predict interest rates is done in a more complete flow-of-funds framework. This approach emphasizes the longer term implications of deficits, including the problems associated with a mature business cycle in which deficits persist at 5 percent of GNP. The conclusion is that inflation and interest rates will be rising, perhaps sharply, as the economy approaches full capacity utilization. The claim that flow analysis is irrelevant requires instantaneous adjustment to every kind of new information. Investment decisions are made by individuals, not computers, and the human mind is incapable of continuous analysis of all relevant variables. Consequently portfolios are influenced by the history of investment decisions, as well as by transactions costs and accounting and legal requirements that prevent or delay full adjustment.

I would also argue that when fully understood and fully specified, flow analysis is not inconsistent with stock analysis, but is rather a different way of looking at the same phenomena. However, changing expectations and uncertainties in the financial markets prevent or delay instant reflection of equilibrium stock adjustments.

Relating these thoughts to investor concerns about the deficit, investors are impressed with the fact that $200 billion deficits imply that the federal government must raise, on average, net new funds of $4 billion weekly. I have often heard the comment, "Why extend maturities now, the market will persistently be hit with new supply." The implications are often referred to by the term the "Europeanization" of the bond market. The meaning is that, as in many European countries, our market will become dominated by government issues and private issuers will only be able to sell much shorter maturities than in the past.

I contend that this already has happened. Many institutional portfolios, which used to make little use of government debt, are dominated by governments because they are the only issues that have

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much liquidity in the marketplace. Private debt has been shortened considerably. In 1975–78 private issuers floated about $17–18 billion of long-term bonds of 20 years maturity or longer, approximately 70 percent of all new bonds. In 1984 only 15 percent or $10 billion of new issues were 20 years or longer (Kimelman and D'Oelsnitz). These developments could be said to describe a "collision" or a "crowding out" of private borrowers by the deficit, although this is a different sense of the term from that used by the *Wall Street Journal* in its editorials during the mid-1970s.

Finally, three additional points concerning the relationships between interest rates and deficits should have been discussed more fully in Brunner's paper.

First, the extraordinary strength of the dollar has held inflation down and has helped in the financing of strong demands for credit. Had the dollar not been so strong, might we not already be seeing the increases in interest rates and inflation associated with the imbalances in fiscal policy? And what will happen when the dollar declines? The common fears might then be quickly realized.

Second, the yield curve had a flat to negative slope throughout most of the 1980–82 period. This is certainly consistent with the conclusion that monetary policy was tight. When combined with stimulative fiscal policy there is a logical explanation for high real interest rates (Blanchard and Summers 1984). I would argue that this is a reasonable alternative to Brunner's explanation. In fact, it may only be another way of looking at the same phenomenon.

Third, the combination of budget deficits and financial deregulation creates considerable uncertainty about future interest rates. The question that arises is whether, without constraints on interest rates, the next cyclical peaks in rates will be higher than ever. On the other hand, high real rates could imply that the economy would remain weak enough to prevent extreme levels of rates. This question is a concern in the market that so far has received little attention from analysts.

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MONETARY POLICY AS A FISCAL INSTRUMENT

Jerry L. Jordan

Introduction and Summary Recommendations

The depression of the 1930s resulted in the creation of many federal agencies that served reasonably well for several decades. Beginning late in the 1970s and continuing into the 1980s, a thorough review and reassessment of the performance of most government agencies has been underway. In the areas of transportation, communications, and banking, significant reforms have been instituted. In other areas they are under consideration. It is entirely appropriate that the U.S. approach to central banking also be reconsidered. The Banking Act of 1935 considerably altered the powers and responsibilities of the Federal Reserve, mainly because the design of 1913 had not prevented the Great Depression. Now we know that the present design was not successful in preventing the great inflation of the 1960s and 1970s. In view of the massive current and prospective federal deficits, it is natural to desire institutional safeguards against the possibility of the fiscal environment resulting in a permanently high inflation era.

The three instruments of monetary policy—the discount window, reserve requirements, and open market operations—are obvious candidates for possible changes. The following reforms should be evaluated:

Discount Window—A floating "penalty rate" on loans by Federal Reserve Banks to private depository institutions should be required. There is no justification for subsidized lending rates to the borrowing banks.

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Reserve Requirements—The current structure is a major improvement over the former tiered structure. Further reforms would include elimination of reserve requirements on "large non-personal time deposits" and removal of the differential between the reserve requirements on the first $29.8 million of transactions liabilities and the reserve ratio applicable to larger amounts. The existing reserve requirement of 12 percent on large transactions liabilities is higher than necessary for monetary policy purposes and should be reduced. The forgone earnings to banks on such idle reserves amounts to a tax or "franchise fee" on banks. The payment of interest on reserves by the Federal Reserve Banks would eliminate this tax.

Open Market Operations—It is essential to recognize an open market purchase as a monetization of debt. Security purchases by the Fed reduce the real net national debt. The effect of such transactions is to finance government by creating new money. Under current arrangements there are no constraints on the amount of debt monetization that can occur. In view of the large fiscal deficits, maintaining a noninflationary environment would require that the Fed monetize a smaller and smaller share of the real national debt each year. There is no reason to expect that will happen in a purely discretionary policy regime. Some constraint on the monetary authorities' ability to monetize debt should be instituted.

As an interim solution, pending more fundamental reconsiderations of the Federal Reserve's powers, a proposal by Professor Axel Leijonhufvud in testimony before the Joint Economic Committee of Congress, deserves consideration. Namely, "Congress should legislate a *maximum* for the monetary base that the Federal Reserve could have in existence at any given time." This ceiling for the base would grow at a very slow rate—the difference between long-run real output growth and the trend growth of base velocity, with some allowance for currency growth.

Historical Perspective of the Federal Reserve System

Following the banking panic of 1907, a presidential commission was appointed to study the causes of the collapse of banking institutions and to suggest measures designed to prevent recurrence of such an event. Several studies and extended congressional hearings were conducted, resulting in two primary alternative approaches to central banking. Finally, in 1913, the Congress passed the Federal Reserve Act creating a system of twelve "bankers' banks," supervised by a Board of Governors. At that time, the United States was on a

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gold standard so the primary functions of these banks were to be the "lender of last resort" by way of the discount window, to provide for the issuance of new, more stable, national currency and to facilitate the clearing of checks.

This was the third attempt to establish a central bank in the United States, the first two each lasting only 20 years in the late 18th and early 19th centuries. The new, 20th-century central bank—the Federal Reserve System—was confronted with its first major financial crises when it was less than 20 years old and was still concerned with survival. Scholars have argued that the Federal Reserve not only did not prevent the Great Depression of the 1930s, but the behavior of the Federal Reserve caused the stock market collapse of 1929 to be transmitted to the banking system and ultimately the real economy, resulting in a very long and deep economic contraction.

Contrary to congressional mandate, the Federal Reserve Banks did not perform as lenders of last resort. The failure of about half the banks in the country in just a few years time might not have occurred if the Fed had not permitted the money supply to contract by one-third in four years. As deflation and economic contraction set in, interest rates dropped very sharply. Behaving like good bankers—but not central bankers—the Federal Reserve refused to purchase financial instruments with a very low yield fearing that once recovery occurred and interest rates began to rise they would suffer a capital loss, and the viability of the institution would be at stake.

In a nutshell, the Reserve Banks were so concerned about their own survival that they did not ensure the survival of private commercial banks. The result was depression. In the late 1930s, recovery was well under way at a time that the central bank doubled the level of reserve requirements causing a very substantial shock to the economic system and precipitating a severe recession. That occasion was the last time the "sledge hammer approach" to monetary policy—the use of reserve requirement manipulation—was attempted.

Following World War II, a period of general economic prosperity with relatively low inflation and interest rates occurred for several reasons. One was that throughout the 1950s and 1960s the outstanding stock of real government debt declined relative to national income and relative to stocks of private productive assets. The world was basically on a dollar standard and, through the operation of the Bretton Woods fixed exchange rate system, a regime of relative monetary discipline was in operation. However, in the late 1960s the combination of military expenditures for the Vietnam War plus greatly increased social expenditures on "Great Society" programs caused a

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period of increased national indebtedness, higher inflation, and higher interest rates.

President Lyndon Johnson removed some of the disciplining arrangements in the system in several steps. First, the gold cover on demand deposits was removed, followed by a removal of the gold cover on Federal Reserve currency outstanding. Then, the London gold pool was formally ended in 1968 and the world no longer was bound, de facto, to a gold/dollar exchange system. The combination of the 10 percent surtax on personal and corporate incomes in 1968 and 1969, together with the highly restrictive monetary policy of 1969, helped to strengthen the U.S. dollar and to paper over the fundamental weakness in the financial system, although these policy actions resulted in the 1970 recession.

Recovery from recession in 1971 was too vigorous as a result of a strong dose of monetary stimulus late in 1970 and during the first half of 1971. As a consequence, President Nixon, in the summer of 1971, adopted domestic wage and price controls and also floated the dollar on foreign exchange markets. In December of 1971, the Smithsonian Agreement was an attempt to patch the system together and to maintain what remained of the Bretton Woods fixed-exchange-rates system. However, an extremely expansionary monetary policy during 1972, while the economic system was constrained by the operation of a pervasive set of wage and price controls, meant that the fixed-exchange-rates system of the postwar period was doomed. Finally, early in 1973, the United States and other major industrialized countries agreed to abandon attempts to maintain exchange rates between currencies. Since that time the United States has been in a purely discretionary monetary policy environment.

Beginning in early 1975, Congress has been interested in providing some discipline to monetary affairs by urging the Federal Reserve to adopt, announce, and achieve targets for various monetary aggregates. So far, there has been limited success with monetary targeting and there continues to be considerable debate in economic as well as political circles about the feasibility and likely effects of monetary targeting. It is generally accepted that the long-run trend rate of inflation is a function of the trend rate of monetary growth. A sustained inflation is not possible without an accommodating monetary policy. However, the relative importance of alternative monetary and credit aggregates is still a matter of some controversy.

Central Bank Debt Monetization—Reconciling the "Mix" of Monetary and Fiscal Policies

It is standard in the freshman economics course to teach that all government spending must be paid for by taxing, borrowing, or print-

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ing money. Habitual deficit spending is a modern phenomenon since well-developed financial markets that permitted the frequent issuance of marketable interest bearing debt did not exist prior to the 20th century. However, debasing the national currency has been a common method of financing government since the time of the Romans, and has long been recognized as simply another way of taxing people. Especially during wars, inflation has been viewed as one of the most efficient methods by which the government gains command over resources. Even today, many countries rely heavily on the inflation tax to finance government.

In major industrialized countries in the 20th century, a government's budget constraint is expressed by the following identity: expenditures minus tax revenue equals bonds plus base money. The "deficit" is equal to the net increase in the stock of government debt outstanding plus the net change in the monetary base. When the central bank acquires government debt, we say that the debt has been "monetized" because non-interest bearing government debt (base money) has been issued in exchange for the interest bearing debt. Open market purchases of government debt by a central bank simultaneously reduce the net interest expense of the government and increase the nation's money supply. If the amount of money in circulation rises faster than the *demand to hold* it for its monetary services, the purchasing power of the money units declines. What is being inflated is the quantity of money units in nominal terms, and the observed rise of the "price level" is actually a rising amount of money units needed to buy the same basket of goods.

One of the oldest and most reliable statistical relationships in economics is between the level of market interest rates and the rate of inflation. Periods of sustained high inflation in any country are characterized by high interest rates, while periods of low inflation have been periods of low interest rates. The reason is that lenders anticipate being paid back in lower purchasing power currency units, so they want more of them, while borrowers are willing to pay higher interest rates in the expectation that inflation will erode the real cost of the debt. The rate of anticipated future inflation may be higher or lower than recent past actual inflation if the combination of monetary and fiscal policies provides a basis for expecting an acceleration or deceleration of the rate of price increases.

Deficit financing by government leads to expectations that either future explicit taxes must go up, or the future inflation rate will go up. Bonds that are issued to finance current expenditures require that interest and principal be paid out of future tax revenue.

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Unattractive Choices

Starting from the current situation in which the average interest rate on the outstanding debt is greater than the growth rate of national income, if non-interest expenditures in the budget rise as fast as national income (as they do with indexation), and explicit tax revenue also is a relatively stable ratio of national income (as it is under an indexed tax system), interest and principal on the debt can be paid only if one or more of several conditions is met:

- Non-interest expenditures are cut relative to national income;
- Explicit taxes are raised relative to national income;
- The debt is monetized through open market operations and the resulting debasement of the currency results in faster nominal growth of national income.

Market participants will assign probabilities to each of these possible outcomes, and market interest rates will reflect a median expectation with regard to the likely rate of inflation.

The rising average inflation rate of the 1960s and 1970s was accompanied by a rising level of interest rates. As new debt was issued and old (low-interest rate) debt matured, the average interest rate on the outstanding debt rose. The secular "disinflationary process" that got under way in 1981 means that nominal income growth will slow until price stability is eventually reached. But, since the average maturity of the outstanding debt is about four years, the average interest rate on the debt will fall only very slowly even if current nominal interest rates fall along with the decline of inflation. For the past several years, interest rates have not fallen as rapidly as has the reported rate of inflation, giving rise to two interpretations. One is that the long-run expected rate of inflation is higher than the observed rate, so the "inflation premium" in interest rates is relatively high. The other is that the "real" rate of interest has risen to historically high levels. If either the real interest rate on the debt is greater than real output growth (as debated by Sargent-Wallace and Darby) or the inflation premium in market rates is greater than actual inflation, nominal interest rates will be above nominal income growth.

Arithmetic Trap

In this environment, interest expense on the national debt must rise relative to national income. To illustrate the potential magnitude of the problem, assume that the inherited average interest cost or yield on the outstanding debt is 12 percent, and that additions to the stock of debt (deficits) will be financed at 12 percent. Further, assume that future nominal income growth is expected to average 9 percent (3–4 percent output growth and 5–6 percent inflation). Start with

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GNP at $3,600 billion and the debt at one-third that amount—$1,200 billion—and the initial deficit equal to interest expense—$144 billion. Using the "rule of 72," GNP will double every 8 years, while the debt will double every 6 years. That means GNP will double three times in 24 years while the debt doubles four times. That means the national debt will rise from one-third of GNP to two-thirds, and the deficit will rise from 4 percent of GNP to 8 percent. These assumptions produce annual deficits of over $2 trillion and a national debt of $19 trillion in less than two-and-one-half decades. To repeat, this outcome was based on the assumption that non-interest expenditures and tax revenues are constant ratios of GNP.

Reducing non-interest expenditures (defense and social programs) as a share of GNP or raising tax revenue at the same rate as interest expense rises would prevent the catastrophe. However, a much simpler solution is available which does not require any hard choices and compromises by the president and Congress. By raising nominal GNP growth above the interest rate on the outstanding debt we can create an environment in which interest expense falls relative to national income. Then deficits would be a shrinking ratio of national income, or there would be more room for greater spending.

Before this alternative starts to sound too attractive, some of its implications should be revealed. Raising nominal income growth above 12 percent can be easily accomplished by raising money growth to 9–10 percent. But, that would mean inflation rising to at least 8–9 percent for starters. Since rising inflation will be accompanied by rising interest rates, the average interest cost of the debt will start to rise. That will necessitate raising nominal income growth further, and so too the inflation rate. A constantly accelerating rate of inflation is the only way to keep ahead of interest costs. All this is not very hypothetical since that is pretty much the story of the period from the early 1960s to 1980. Given the short time horizon of most politicians, "a little more inflation" is not viewed as such an undesirable alternative—at least not compared to cutting spending or raising taxes.

In view of the inability of contemporary political systems to balance budgets, a fundamental proposition of modern history is that national debts are ultimately monetized. Non-interest bearing debt is issued by the central bank in exchange for interest bearing debt which is effectively canceled. Such monetization of debt through the creation of "high powered money" results in rising inflation, so the real value of the debt that is not monetized declines. Even with the indexation of the personal tax structure to eliminate "bracket creep," the government still benefits from inflation.

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What to Do

If we start to search for solutions by accepting the proposition that the real federal budget is always balanced—there can be no deficit in an actuarial sense—we can put aside the dispute about raising taxes or not. If the government spends, a tax is levied. Now we can debate which taxes are most harmful to the economy. There are some explicit taxes that would be more harmful than the implicit tax of inflation, but few are more regressive, devisive, or dishonest. One reason for preferring *any* explicit tax over inflation is that Congress must vote for them and must either get the President's concurrence or be able to override his veto. Tying decisions to raise spending to companion decisions to either raise taxes or cut other spending is a way of getting politicians to come face to face with the real costs of their actions.

In the long run, failure to control federal spending would mean failure to contain inflation. However, even if we had a Balanced Budget Amendment to the Constitution or some type of spending limitation, the existing stock of debt still could be monetized at an inflationary rate.

As a possible institutional reform, suppose open market transactions by the Fed could be used only for "defensive" purposes—that is, to offset the effects of other transactions on the monetary base. Under such a set of arrangements, where the Fed would be required to hold the total monetary base constant over time, *all* government spending would have to be financed by either current explicit taxation or future explicit taxation. In other words, current deficits would have to be matched by future surpluses.

More realistically, if the rate at which the central bank could monetize debt were constrained to be equal to a rate consistent with the growth of currency and transactions deposits in a stable price level environment, the government would benefit from a relatively small amount of seignoriage from debt monetization, but debasing the currency would not be a significant method of government finance. Since a noninflationary growth of the monetary base would be only a few percent per year, about $10 billion less debt would be monetized (at current levels) than would otherwise be the case. While the outstanding debt recently has been rising rapidly relative to national income and the stock of productive assets, the ratio is still low relative to the past 50 years.

Adopting a no-deficits fiscal policy immediately would mean the inherited debt would decline in absolute and relative terms (in a no-inflation environment) only as a result of real economic growth and

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a few billion dollars per year of debt monetization, unless the government incurred surpluses at some point.

Conclusion

My basic message is that meaningful monetary reform cannot precede reform of the fiscal regime. The United States entered a new fiscal regime sometime in the past decade when the stock of net national debt stopped falling relative to national income and began rising. This new fiscal regime carries with it an implied monetary regime that cannot be reformed and made noninflationary in isolation. Reform of the fiscal regime is a necessary, but not a sufficient condition for reform of the monetary regime. Reform of the monetary regime is neither necessary nor sufficient for reform of the fiscal regime.

All this is just another way of saying that monetary actions by the central bank are just another type of fiscal policy—a way to finance government. In the short run it is possible (and common) for monetary policy to be implemented independently of the fiscal regime. However, in the long run, the fiscal regime dictates the monetary policy actions. Habitual deficit financing ultimately is inflationary.

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INSTITUTIONAL EVOLUTION OF FEDERAL RESERVE HEGEMONY

Richard H. Timberlake

> If for any reason—and God grant it may never be so—these boards of control [in the 12 Federal Reserve Banks and the Board of Governors] should lack the wisdom and the courage to do their duty, we would still be subject to all the disasters that now befall us, because of the fact that the control is not wisely exercised.
>
> —Rep. Charles Korbly[1]

The monetary system of the pre-Federal Reserve era was supposed to lack form-seasonal elasticity—that is, the ability at critical times to convert one form of money into another without undue change in the total quantity of money. The role of the gold standard, which was the dominant monetary institution of the time, was to provide automatically a rate of growth in the quantity of base money compatible with the rate of growth in the economy's real output. It could not be expected to make short-run adjustments that developed fundamentally from the workings of the fractional reserve banking system. The creation of the Fed is viewed conventionally as a step toward a payments system with the desired characteristic of monetary elasticity, and the Fed is then assumed to have pursued forthrightly monetary-economic goals in an environment of political independence.

In point of fact, this picture is at best wishful thinking. It omits several factors that led to the formation of the Federal Reserve System; it overlooks the technical failure of the Fed to perform as specified in its first 20 years of existence; and it ignores the political

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[1]U.S. Congress, *Congressional Record* 50, pt. 5 (10 September 1913): 4663. Hereafter, all references to the *Congressional Record* are abbreviated by CR.

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activism that has altered completely the institutional *raison d'etre* of the Fed since the World War I period.

This paper attempts to trace the political evolution of the Fed in conjunction with the changes in its institutional structure that have made these changes operational.

I. The Pre-Fed Institutional Milieu

At least four other institutions were active in monetary affairs before the Federal Reserve Act was passed. First, the gold standard was the base of the system. It operated without human manipulation to provide the economy with high-powered money. A second institution was the national banking system, which was then a reserve-holding group of larger, stronger, urban banks for their "country" correspondents. National banks, however, were unable to function as true bankers' banks by lending to their client banks in times of crisis because, as profit-seeking institutions in competition with each other, they could not retain a quantum of uncommitted reserves.

A third institution was the independent Treasury, which was simply the U.S. Treasury Department structured to be independent of the banking system. In its original form it was supposed to have kept its own cash balances, so that its fiscal activities did not in any way upset the banking system. However, at opportune times, its presiding secretaries became aware of the leverage that Treasury balances could have on the rest of the monetary system and responded by initiating various monetary policies that were notable for their ingenuity if not for their legal propriety. Over the decades the independent Treasury did a complete about-face. Initially formed to be aloof and apolitical, it emerged as a policy-wise and interventionist agency (Timberlake 1978, pp. 62–83, 171–85).

The fourth institution, the private clearinghouse system, appeared slightly later than the independent Treasury. Originally a technical arrangement for economizing bank clearings, clearinghouses became the private system's version of a lender of last resort. While the system worked well and had the proper checks and balances, it also had an aura of illegality and manipulation that populist politicians associated with their pet bogeymen on Wall Street (Timberlake 1984).

In sum, the pre-Fed system featured four institutions: (1) an operational gold standard secularly regulating the quantity of money in the economy; (2) a national banking system which acted in part as a reserve depository for non-national banks; (3) an "independent" Treasury that occasionally manipulated its fiscal balances to effect changes in the reserves of the banking system; and (4) a private

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clearinghouse system, which, while illegal in its policy role, was instrumental in extending the media used for payments when the banking system was threatened with critical drains of reserves. Of these institutions, the gold standard and the national banking system were regarded as acceptable but inadequate. The "independent" Treasury was seen as having assumed undesirable interventionist characteristics, while the clearinghouse system was viewed as a haphazard and illegal make-shift. The Federal Reserve Act therefore, was an attempt to combine and channel the powers then exercised by the Treasury and clearinghouses into a formally structured institution that would be at once legitimate, independent, scientific, federated, and efficient.

II. Institutional Aspects of the Federal Reserve Act

The characteristics looked for by Congress were emphasized in the debates over the Federal Reserve bill in the fall of 1913. Federal Reserve Banks were *not* to be central banks or a central banking system. This feeling was often expressed in the actual debates over the Federal Reserve bill. One prominent congressman, Everis Hayes of California, stated: "Our people have set their faces like steel against a central bank" (*CR* 50, pt. 5 [1913]: 4655). An influential senator, John Shafroth of Colorado, argued likewise: "The Democratic Party is opposed to a central bank, and well it should be, because of the fact that it would concentrate in one place such a combination of wealth as could be used to the disadvantage of the entire people of the United States" (*CR* 50, pt. 6 [1913]: 6021).

The popular (not to say Populist) image of a central bank came through as a large banking monolith, centered in Wall Street—one that controlled money and interest rates for the benefit of bankers. "Central bank," therefore, was a term that was politically unacceptable, particularly to Democrats. Another label had to be used, such as, "a regional reserve-holding institution." Some congressmen were more realistic. "The central bank does not consist of a vault . . . [or] a mass of money," noted Senator Gilbert Hitchcock of Nebraska. "The central bank consists of central control, and that is provided in this bill. . . . When you get your control centralized, you have a central bank" (*CR* 51, pt. 1 [1913]: 702).

If the Fed fetus was not to be a central bank, what was it in the eyes of its sponsors? Two concepts emerged from the debates. One saw the Fed as a supreme court of finance; the other thought of the Fed as a public utility regulator similar to the Interstate Commerce

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Commission (ICC). Just as the ICC was to keep railway rates "low," so a Federal Reserve Bank, stated Hitchcock, "is established as a public utility. It is not to make money; it is to protect the depositors against loss; and it is to give the borrowing public a stable and uniform low rate of interest" (*CR* 50, pt. 6 [1913]: 6016).

Hitchcock, while a Democrat, was also a spokesman for the populist segment in Congress. This group had devised a separate bill from that of the orthodox Democrats. Their philosophy was expressed forthrightly by Hitchcock. "We believe in Government control, real and actual, all the time," he said; "and we do not believe that the banking interests in any community should be intrusted with that power [to control the monetary system]." Bankers were "money devils"; and ". . . the people of Nebraska want to have the reserve banks owned by the people and not the banking interests." (*CR* 51, pt. 1 [1913]: 703).

Shafroth, a more conventional Democrat, opposed Hitchcock. He observed that the bill for the Fed was "framed on the theory that this is a bank of banks for the purpose of preventing runs on banks. . . . Every national bank in the United States," he concluded, "is a people's bank. . . . You do not want to mix a bank of banks with a people's bank" (*CR* 51, pt. 1 [1913]: 703).

As a supreme court of finance or a quasi-ICC, the Fed would operate as a "scientific" regulator of the payments system, so it would require scientific expertise by its managers. In particular, they would have to be able to determine that the commercial paper banks offered for rediscount to the Federal Reserve Banks was "eligible." "Eligible paper" meant real bills issued for productive purposes at short-term. As Charles Korbly observed, "[s]uch paper springs from self-clearing transactions." "Checks and bills," said Korbly, "are the offspring of sales." Thus, Korbly reflected Bagehot's principle: "It is the duty of the banker to discount freely for his customer in a crisis or panic. The only limit . . . to discount is the limit to good commercial paper." The role of the Fed by this canon was to enhance and guarantee the production of money in accordance with the production of goods. (*CR* 50, pt. 5 [1913]: 4659–62).

Presiding over the scientific application of the real bills principle would be the Federal Reserve Board. The Reserve Banks would discount real bills, and the Federal Reserve Board would act as a referee in determining the validity of the real bills. "If a member bank presents the right kind of paper, such as is required by law," stated Knute Nelson of Minnesota, ". . . it shall absolutely be entitled to have a discount for that paper" (*CR* 51, pt. 1 [1913]: 523). Nelson

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and others who argued in this way clearly believed that the real bills-eligible paper doctrine left no element of discretion in the bill.

Nelson's logic was sound. If eligible commercial paper were scientifically identifiable, no excess or deficient issue of money could occur. However, one senator, John Weeks of Massachusetts, said that he had tried to get "12 or 15 banking men" to give a precise definition of eligible paper and not one of them could do it. Nevertheless, he felt that the Federal Reserve Board when appointed would be able to make the correct definition. (*CR* 51, pt. 2 [1913]: 1074).

Senator Elihu Root of New York, however, cautioned his fellows on the fair weather nature of eligible paper. "The standards which are applied in the exercise of that kind of judgment [i.e., evaluating the soundness of paper offered for discount] become modified by the optimism of the hour," he warned, "and grow less and less effective in checking the expansion of business" (*CR* 51, pt. 1 [1913]: 967). Root here put his finger on the inadequacy of the real bills doctrine—the fact that the money value of every bill depended on the judgment of the banker who bought it.

Congressmen's views on the proper characteristics for the new Fed—on the relationship of the Board to the Fed Banks and on the connection between the Fed and the commercial banking system—seemed at times diverse. In addition to the antipathy toward a central bank, the consensus seemed clearly in favor of a nondiscretionary, self-regulating, reserve-mobilizing institution. In no sense was the gold standard to be violated. In fact, a special provision in the final bill stated: "Nothing in this act . . . shall be considered to repeal the parity provisions [on gold] contained in an act approved March 14, 1900" (*CR* 50, pt. 5 [1913]: 5101).

The Federal Reserve System was to be a self-regulating adjunct to a self-regulating gold standard. It was to do at short term what the gold standard did secularly—that is, provide seasonal money commensurate with seasonal productions of commodities. It was to adjust the money stock to the needs of trade. It was to displace the discredited "independent" Treasury. It would also assume the clearing function for banks; and it would put the clearinghouse operation of providing "emergency" currency in a crisis on an official, legal, scientific plane.

Near the end of the debates, some congressmen expressed concern over the possibility that the new Fed would become an engine of inflation because Federal Reserve notes would simply be another fiat money. Carter Glass, the principal sponsor of the bill, challenged those who made such a charge "to name a single lexicographer on the face of the earth . . . to justify [such a] characterization of these

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notes." Any possible inflation from their issue, he claimed, would be checked "first, by the limited supply of gold; second, by the limited amount of short-time commercial paper; third, by the banking discretion of the individual bank; fourth, by the banking discretion of the regional reserve bank; fifth, by the banking discretion of the Federal Reserve Board, with a broad view of conditions not in a single district, but throughout the country" (*CR* 50, pt. 7, app. [1913]: 563–64).

Only the first of Glass's alleged constraints against inflation was or could be effective. The gold standard law permitted the monetization of gold on fixed dollar terms. No one ever had to define "eligible" gold for monetization purposes because all gold was eligible. Monetization of gold included no human judgment of the dollar value of the thing monetized.

The monetization of commercial bank assets, however, no matter how "real" those assets, requires all the "discretion" alluded to by Glass. If the bankers and central bankers negotiating credit extensions and new money are overly conservative, they will generate a deflation; if they are too ebullient, they will provoke an inflation. A gold standard sets limits on their judgments, but much disequilibrium can result before the gold standard's constraints are realized.

III. Congressional Norms in the Banking Act of 1935

The grand hopes for monetary stability from the creation of the Federal Reserve System were dashed by the experience of the thousands of bank failures that occurred between 1930 and 1933 and the economic contraction that accompanied and followed them (Friedman and Schwartz 1963, pp. 407–19). Organization of the Fed as an official lender of last resort had necessitated abandonment of the clearinghouse lending system that the commercial banks had erected on their own behalf in order to isolate bank liquidity problems. The key actions in the past had been restriction of payments—that is, the greatly retarded conversion of bank liabilities into base money, and the infusion of clearinghouse currency into major transaction arteries. During 1929–33, the Fed not only did not take over these functions, it spoke out against them and became frozen in its own bureaucratic moraine (Friedman and Schwartz 1963, pp. 327–30; Timberlake 1984).

The 74th Congress that convened in 1935 considered economic problems paramount, and monetary conditions were chief among the economic issues that demanded treatment. The general consensus of congressional opinion was that the Great Crash and ensuing

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depression were caused by (not just correlated with) wild speculation and stock gambling encouraged by loose credit policies of the Federal Reserve System (*CR* 79, pt. 11 [1935]: 11915). Not only had the Fed been remiss in preventing speculative credit excesses, its vaunted power had inadequate definition and oversight. It was marked especially by uncertain lines of authority. To correct this deficiency, Congress considered a new "reform" bill that was to change drastically the institutional structure and hegemony of the Federal Reserve System.

The sponsor of the bill (H.R. 7617), which eventually became the Banking Act of 1935, was Henry Steagall of Alabama who was referred to by Carter Glass, his counterpart in the Senate, as the "worst inflationist in the country" (*CR* 79, pt. 11 [1935]: 11825). Steagall noted critically how improperly the eligibility doctrine had been applied. Many member banks, he complained, "went down in ruin because of the arbitrary, inelastic, straitlaced eligibility requirements of the Federal Reserve System, as a result of which solvent banks were unable to get the accommodations to which they were entitled" (*CR* 79, pt 13 [1935]: 13706).

The solution Steagall offered, and the one endorsed by a majority of Congress, was to replace the "wrong people" with the "right people." The wrong people were the bankers who managed the Federal Reserve Banks. The proper group to manage the system was the Board of Governors. The pending law would allow the president of the United States to reconstitute the Board and bring "the System with its vast resources into full harmony with the advanced [sic] policies of the present [Roosevelt] administration. We all know," he concluded in a classic statement of men-versus-law, "that it does not matter so much what we write into the law as it does who administers the law." By diverting control of the System from the 12 Federal Reserve Banks to the Federal Reserve Board, the credit and monetary policies of the country would be exercised in the name of the "people of the United States" (*CR* 79, pt. 13 [1935]: 13706).

The spokesman for the bill in the Senate was Carter Glass, the above-mentioned sponsor of the original Federal Reserve Act in 1913 when he had been a member of the House of Representatives. Glass recounted how the Open Market Committee was supposed to enforce the impact of the discount rate through the buying and selling of securities. "It is now proposed," he said critically, "to make the open-market committee the supreme power in the determination of the credits of the country. No such thing was intended [by the Federal Reserve Act], and no such thing should ever be done." Glass objected especially to the Federal Reserve Board being the Open Market

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Committee because, he claimed, the Board "does not have a dollar of pecuniary interest in the Reserve funds or the deposits of the Federal Reserve banks or of the member banks . . . " (*CR* 79, pt. 11 [1935]: 11778).

The compromise solution for the bill reached by the House-Senate conference committee was to reconstitute the Open Market Committee in the form it has had ever since—that is, five Fed Bank Presidents and the seven members of the Board of Governors. Board members being a majority, the execution of monetary policy became safely lodged in the "representatives of the people."

The debate on the bill emphasized a number of facts and impressions that had emerged from the Fed's first 20 years of operation. A major problem was the dilemma of control. The original act had provided for regional reserve control by the Fed Banks with general oversight by the Board. The Fed Banks were seen as super-commercial banks vested with a public interest, but a public interest that would operate through the medium of the member banks.[2] Since the banking system was the vehicle, bankers had to be in control because they alone had the expertise to manipulate the system properly. What was good for the banks—namely, credit relief at critical times—was also good for the general public. At the same time, this policy obviously acted as a welfare program for bankers. The Fed was the bankers' lender of last resort, but who was to say that the Fed was not also their lender of first resort?

The check-and-balance here was supposed to have been the real bills-eligible paper doctrine. This device, however, had proven demonstrably unworkable because of the pro-cyclical aura that commercial loans assumed: When business was good, all discounts were very, very "eligible"; and when business was bad, they were all horrid. Open market operations were the answer. Not only did they make the discounting function unnecessary, they also could be conducted by an "impartial" body—the Federal (Reserve) Open Market Committee (FOMC).

The debate on this issue provoked a discussion over which elements in the System should have, and which did have, decision-making powers—the Board or the Federal Reserve Bank of New York. The debaters were Senator Glass and Senator Elmer Thomas, a populist from Oklahoma.

"The Federal Reserve Board," said Thomas, "should be the most powerful, the most important, and most respected tribunal in the

[2]Glass's statement implies this view. The Federal Reserve Banks were *banks*, albeit of a special kind, but operating under some of the constraints of private ownership.

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United States." Unfortunately, he noted, the Board did not control the Federal Reserve System. Rather, "the policy of the 12 banks is controlled and dictated by the Federal Reserve Bank of New York." Glass denied Thomas's statement as ". . . inaccurate . . . [and] a humiliating confession that the Federal Reserve Board . . . declined to assert its lawful functions. . . . The Board was instituted to see that the Federal Reserve Banks obeyed the law." Thomas replied: "Heretofore, the Federal Reserve Board has been so circumscribed with limitations that [it] had virtually no effective power." Glass countered: "They had all power" (*CR* 79, pt. 11 [1935]: 11923–24).

The blind men were describing the elephant. Each had a different view of who ought to control the system, who did control the system, and how the system was supposed to work in the first place. This uncertainty over the Fed's structure and functions was the logical result of public bureaucracy. It is discussed in picturesque detail in Friedman and Schwartz's *Monetary History of the United States.* Particularly emphasized by them, and also by the debates in Congress, was the cult of personality. They argue with much force that the effectiveness of policy within the framework of the System at that time depended on the force of personality in those men who knew how the monetary system worked (Friedman and Schwartz 1963, pp. 411–19). Ironically, this characteristic is just what the original Federal Reserve Act was supposed to avoid.

The cult of laying on hands, however, was rampant in the 1930s. Steagall's categorical remark cited above is a case in point. In the Senate the same idea was belabored by Elmer Thomas in his exaltation of the Federal Reserve Board. "Someone, somewhere," he asserted, "has been and is regulating the value [of money]; and I should like to inquire under what law is the value of the dollar being regulated?" The Constitution, he noted, granted Congress the power to regulate the value of money. The dollar had doubled in value from unknown causes between 1920 and 1935. "Someone," he continued, "is regulating the value of our dollar. No one seems to know who is doing it. There is no authority, there is no commission, there is no board, there is no particular individual who has had enjoined upon it or him, by congressional mandate, the duty of regulating the value of the dollar." His prescription was that the Federal Reserve Board be "charged with this responsibility" (CR 79, pt. 11 [1935]: 11925).

Senators Gerald Nye of North Dakota and William Borah of Idaho also wanted to implement Congress's power to regulate the value of money. They proposed writing into the new bill a section prescribing a stable price level policy to be implemented by the Federal Reserve Board. Indeed, Nye wanted the Board's staff to include the Bureau

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of Labor Statistics so that the Board could "scientifically and accurately determine the rate at which progressive additions to the stock of circulating money . . . must be made in order to maintain an even and stable purchasing power" (*CR* 79, pt. 11 [1935]: 11842).

Borah was even more explicit in his wish to avoid discretion. He warned against the open-ended nature of the open market provision stating, "There is practically no limit there—nothing but the discretion of such men as [Benjamin] Strong and [John] Mitchell." He wanted Congress "to fix a definite policy and enact a definite mandate by which these officers . . . are to be controlled" (*CR* 79, pt. 11 [1935]: 11908). The proposed amendments, however, were rejected by a voice vote of the Senate.

A final element in the bill was to take the Secretary of the Treasury and the Comptroller of the Currency off the Board. They had been included as *ex officio* members in the original act. Glass, who had been Secretary of the Treasury under Wilson, rendered a telling commentary on this provision. He observed that as Secretary he had treated the Board "as a bureau of the Treasury. . . . I dominated the activities of the Board," he confessed, "and I always directed them in the interests of the Treasury, and so did my predecessor, the present Senator from California [Mr. William McAdoo]" (*CR* 79, pt. 11 [1935]: 11776). Even in the beginning, the much-vaunted political independence of the Fed was a myth.

IV. The Federal Reserve System after 1935

The Banking Act of 1935 took the Secretary of the Treasury off the Board, but it did not take him out of range for influencing Federal Reserve policy. This policy during the late 1930s and through the 1940s shifted from the old eligible paper principle to the political compulsion of chaperoning government security prices and their corresponding interest rates. Here again the heavy hand of the Executive Branch was manifest. Only after Marriner Eccles, a more independent member of the Federal Reserve Board, openly challenged the brazen attempt by the Truman administration to continue the government security policy did Congress insist that the Treasury abstain from any further interference with the Fed (Eccles 1951, pp. 479–99).

The "Accord" between the two agencies was reached in 1951. From then until the mid-1960s, the Fed as an institution did nothing blatantly exceptionable. Money stocks increased conservatively, and the rate of change in prices was very close to zero for fifteen years.

Two independent events brought this stable and tranquil era to a close. First, the fiscal spending programs of the Johnson administra-

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tion put much direct and indirect pressure on the Fed to inflate the monetary system. The Fed, unable to resist, let the monetary aggregates increase unduly and the price level began to rise. For the next 15 years—from mid-1967 to about 1982—money stocks and price level fluctuations behaved similarly to a remorseful but irresolute alcoholic and his bottle. A period of monetary drunkenness would be followed by a weeping and wailing and gnashing of teeth and a return to monetary austerity. Then rationalizations would appear: "High interest rates are hurting the fragile economic recovery." "The agricultural sectors (or the smokestack industries) are depressed." "We need monetary relief from _____." (Here, the reader can furnish his favorite scapegoat policy, such as "monetarism.") With a happy gasp, the bottle would appear again.

The other happenstance of the time was the flow of gold from the United States to foreign central banks and governments. The only technical effect this movement had on the monetary system was to change the Fed's accounting and monetization procedures. When the Fed lost dollar values in its gold certificate account, it replaced them by monetizing more government securities. This compensation emphasized the insularity of Fed policy from the discipline of gold movements. Nonetheless, the Fed's reserve ratio requirement of gold certificates to the high-powered money it created was threatened by the loss of gold. Congress, at the urging of then-President Johnson, thereupon abolished the gold constraint—first, against bank reserves in 1966, and against Federal Reserve notes in 1968.

The Fed had always had an escape route from the gold requirement (Board of Governors 1961, sec. 11, 4, pp. 34–35). However, Fed officials embraced it as a legal buffer between themselves and politically inspired monetary foolishness. Without it, they had only Congress's enjoinder to promote reasonably stable prices and high levels of employment and production consistent with and in support of the Employment Act of 1946. This doctrine is poor defense against monetary excesses because it is too vague and because it suggests more than monetary policy can deliver. "High levels of employment," for example, can be shaken in the faces of Fed managers to such an extent that they abandon the realizable goal of price level stability in a vain attempt to further this more popular political nostrum. With the gold rule in place, they could resist more effectively.

V. The Monetary Control Act of 1980

The complete abandonment of gold reserve requirements left the Fed without even technical constraints over its money-creating

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powers. Consequently, inclusion of the monetary control section in the Depository Institutions Deregulation and Monetary Control Act (DIDMCA) of 1980 is somewhat puzzling. If a regulatory agency already has absolute power, why does it need enhancement of such power? Additionally, if the private financial industry is deregulated, would not this change suggest, as well, a complementary reduction in the regulatory power of the controlling agency?

The DIDMCA has in total eight titles, which deal with truth in lending simplification, state usury laws, amendments to the national banking laws, and other matters. The first two titles, however, contain the principal substance of the act as well as its contradictory implications: Title I greatly extends the Fed's powers and regulatory scope. At the same time, Title II significantly relaxes restrictions on freedom of economic activity for the rest of the banking and financial system.

Most of Congress's legislative energy was spent on Title II, the section of the act that provided for limited deregulation of the financial industry. The steps taken therein had much theoretical and practical evidence to support them. Title II allowed nonbank institutions to issue deposits, and it permitted banks to offer interest payments on their demand obligations. All institutions could then compete on a "level playing field." Title II also provided for the phasing out of Fed ceilings on interest rates paid to depositors. The obvious logic of these provisions was reflected in the overwhelming vote by which the act was passed in late March 1980 (*CR* 126, pt. 6 [1980]: 7073).

Title I, however, is a different story. In the hearings and debates over this section, Federal Reserve officials presented both Houses of Congress with an array of arguments that dealt largely with three non-problems: (1) The "problem" of declining Fed membership by commercial banks; (2) the "problem" of Federal Reserve note collateral; and (3) the "problem" of Treasury revenue from the Federal Reserve's seigniorage powers. The Fed's preoccupation with these "problems," and its political strategy in resolving them in ways that redounded to its own power and prestige, show how far its present institutional image has departed from the original Federal Reserve Act.

The "problem" of declining bank membership in the Fed (2 per cent of the total between 1970 and 1978) has always been an issue on which Fed officials have spared no rhetoric. Their favorite solution—that Fed membership be made mandatory for all depository institutions—appeared again in their testimony in support of the DIDMCA. Both past and present Fed chairmen of the Board of Governors—Arthur Burns, G. William Miller, and Paul Volcker—

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appeared before congressional committees and testified positively on this issue.[3] Without control over bank reserves deposited in Federal Reserve Banks, Volcker argued before congressional committees, the Open Market Committee would not have a "fulcrum" with which to promote monetary policy (*FRB* 65, no. 10 [1979]: 823).

Volcker's words were noted by Representative Henry Reuss of Wisconsin, who echoed them to his House colleagues a few months later. "Unless [the monetary authorities] have a 'fulcrum,' . . . a reserve base upon which they can conduct their open market policy," Reuss stated, "they are incapable of regulating the money supply" (*CR* 125, pt. 15 [1979]: 19689).

Former Chairman G. William Miller tied reserves and membership to the privilege of the discount window. In a statement that is classic for its inconsistency, he first noted the Fed could indeed check growth in money and credit to abate inflation. He then argued that if bank membership in the Fed declined significantly so that fewer and fewer banks had access to the discount window, the Fed "may find that its ability . . . to curb inflation was being unduly impeded because the safety valve provided by the discount window was losing its effective coverage" (*FRB* 65, no. 3 [1979]: 230).

These statements by Fed officials were either contradictions of facts or palpable absurdities. The Fed creates the monetary base in the form of bank vault cash, hand-to-hand currency, and bank reserve accounts constantly and positively, not just when an occasional bank needs extra liquidity. Virtually every hour of the day the Fed is acting as a "lender of last resort" by converting government securities into the monetary base, which banks must hold as reserves whether they are Fed members or not. In this ongoing operation, the role of the discount window is negligible. The dollar value of the monetary base at the end of 1980, for example, was $155 billion, while loans to member banks were less than $1.5 billion. Therefore, as a source of the monetary base, Fed monetization of discounts to member banks was less than 1 percent.

Federal Reserve arguments on the second non-problem—the alleged inadequacy of government security collateral for "backing" Federal Reserve notes—proved to be a panoply of accounting absurdities and subterfuge. In order for the Fed to issue Federal Reserve notes, it must buy one of a number of financial assets that already are eligible collateral. Therefore, it could never be short of such items.

[3]See *Federal Reserve Bulletin* 65, no. 3 (1979): 230, and *Federal Reserve Bulletin* 65, no. 10 (1979): 823. Hereafter, all references to the *Federal Reserve Bulletin* are abbreviated by *FRB*.

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Notwithstanding the facts of the balance sheet, Fed officials argued that the list of collaterals needed to be supplemented by the inclusion of "fully guaranteed obligations of a foreign government or the agency of a foreign government." The Fed not only initiated this provision by contacting key members of Congress who wrote the act, they also supplied the devious arguments to support it (*FRB* 65, no. 10 [1979]: 822–28). In their testimony, Fed officials inverted the entire money-creating procedure for the benefit of their congressional puppets. When Senator Proxmire discussed Fed procedures and the necessity for collateral supplementation before his Senate colleagues, his "explanation" came out as follows: "A portion of the Federal Reserves securities portfolio," he said ". . . represent[s] purchases made [by the Fed] with reserves *deposited by member banks*. Since the Monetary Control Act would release [sic] about $15 billion in reserves [due to lower reserve requirements], a comparable amount of securities would need to be sold. This would reduce the collateral available for Federal Reserve notes" (*CR* 126, pt. 6 [1980]: 6897; emphasis added).

A similar explanation was presented in the House by Chalmers P. Wylie of Ohio. "The banks hold some of these reserves [created by open market operations] as vault cash," he said, "and the rest goes *into* the Federal Reserve System which it uses for investments—the return from which goes to the Treasury of the United States (*CR* 125, pt. 15 [1979]: 19669; emphasis added).

The Proxmire-Wylie (nee Volcker) "explanation" of money-creating procedures implies that the commercial banks initiate the process. As everyone acquainted with Fed operations knows, the FOMC initiates the purchase of the securities and perforce creates bank reserves or currency for which the securities serve as collateral. The Fed can never be short of collateral for the monetary base because it must create the base items to buy the collateral securities.

Actual experience since the passage of the DIDMCA indicates that no collateral problem arose (as, indeed, it *could* not.) The Fed Banks' consolidated balance sheet during the 1981–84 period never showed less than an excess of $9 billion in conventional collateral (i.e., without foreign currencies or obligations) over the outstanding issues of Federal Reserve notes.

The only possible reason for Fed officials to have cultivated this fictional account of their procedures was to extend the Fed's authority for bailing out foreign governments that had outstanding loans with some influential banks in the United States. It could not have had anything to do with the propriety or sufficiency of Federal Reserve

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note collateral, or with the support of the commercial banking system, or with the Fed's maintenance of the monetary system.[4]

The third non-problem treated was the anticipated decline in Treasury revenues that would occur if the Fed tried to solve the non-problem of declining membership by paying depository institutions market interest rates for the reserves they kept in Federal Reserve Banks. Such a provision would have eliminated the real problem member institutions faced in holding these zero-interest reserve balances, and would have been an almost certain means for attracting as many new members as the Fed thought desirable. Since the number of members does not determine the Fed's monetary control factor, it would not have extended the Fed's policy powers. However, it would have answered the Fed's arguments with respect to the relationship between membership and control.

Both G. William Miller and Paul Volcker, on different occasions, commented on this issue. Volcker noted that the costs *to the U.S. Treasury* of paying interest on reserve balances "would be relatively high—apparently higher than the [Carter] administration or Congress would find tolerable" (*FRB* 65, no. 10 [1979]: 824). And Miller several times in his testimony commented on how this or that change in Federal Reserve operations or procedures would impinge revenues to the Treasury (*FRB* 65, no. 3 [1979]: 234–35).

The "problem" of revenue losses to the Treasury stems from the fact that the Fed is the U.S. government's principal minting operation. Every year Fed purchases of U.S. government securities through open-market operations add an equivalent dollar amount of high-powered money to the economy. During calendar year 1984, for example, the Fed bought around $15 billion in U.S. government securities making its total monetization of securities $165 billion. This amount, minus the trivial costs of accounting the new money or printing it, are real seigniorage revenues the government derives from the Fed, its money-creating adjunct. The securities are accounted as if they would receive interest returns from the Treasury. Federal Reserve costs are then deducted from this "income," and the balance is "rebated" to the Treasury. In 1983, net "income" on Fed holdings of U.S. government securities after costs was accounted as $14 billion and duly "returned" to the Treasury (*FRB* 70, no. 2 [1984]: 109).

In fact, none of this net interest "income" ever gets to the Federal Reserve. The Fed's budget—that part of its government security "income" actually paid from Treasury revenues—appears to the

[4]These two "problems" are discussed in somewhat more detail in Timberlake (1985, pp. 97–102).

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Treasury Department as a net drain on general revenues, and any addition to the Fed's budgetary outlays is seen by the Treasury as an additional cash outflow and cost for servicing the national debt. Therefore, interest payments on the reserve balances of depository institutions would not have reduced Federal Reserve "income," but would have increased Federal Reserve costs—and Treasury payments—in 1980 by an estimated $500 million. These outlays would have gone to the depository institutions who kept reserve accounts at Federal Reserve Banks.

Chairman Miller noted in his testimony that the estimated aggregate cost of Fed membership to the member banks exceeded $650 million annually in 1977 (*FRB* 65, no. 3 [1979]: 231). Provision for interest payments, in all fairness, would simply have offset this real cost to the banks and would have made the banks more competitive with their nonbank rivals. Finally, it would have retained the voluntary character of Fed membership.

These arguments notwithstanding, Volcker, while he paid lip service to a voluntary system, urged mandatory and universal reserve requirements. "This approach," he said, "is consistent with the position preferred by the Federal Reserve Board for a long time" (*FRB* 65, no. 10 [1979]: 824). Just as important, this approach was the only one that the Treasury and the Carter administration would accept. They were not about to forgo any of the lucrative seigniorage revenue that comes to the government without legislation or any popular awareness of its existence.

VI. What To Do with the Fed

The non-problems emphasized by the Fed in 1979–80 are important because they underline the priority of the Fed's institutional concerns, which are: (1) to extend the scope of its imperial control over the entire financial industry; (2) to extend its ability to undertake security purchases in foreign financial markets; and (3) to continue to act as a seigniorage agency for the federal government.

These concerns are in sharp contrast to the original arguments for the Fed's existence and the policies it was authorized to undertake. In the beginning, it was an institution designed: (1) to accommodate commercial banks on only a seasonal and emergency basis; (2) to do so by the self-regulating efficacy of the real bills principle and the discount rate it charged member banks; (3) to be completely independent of, and unsullied by, political immoralities; and (4) to carry out its operations within the framework of a gold standard.

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The acts of 1935 and 1980 formally changed the Fed—from a system in which the Federal Reserve Banks were autonomous and the Federal Reserve Board a refereeing committee, to a System in which the Board in Washington is all powerful and the Federal Reserve Banks not much more than administrative units; from an occasional discounter of real bills at the initiative of member banks, to a constant and heavy monetizer of government securities at the initiative of the Open Market Committee; from an institution specifically subordinated to the gold standard, to one that has a monopoly on the initial creation of money, with no vestige of a gold standard remaining; from a lender of last resort for banks, to a perpetual motion machine of money creation; from an institution with an avowed interest in providing liquidity in support of sound banks, to one whose every act is to enhance the power and prestige of itself and the government. Unless one can argue that what is good for the government is good for the general public, one cannot defend either the mutation of the Fed as it has occurred, or the Fed's continued existence as an all-powerful central bank. Its 70-year history as a bureaucratic institution confirms the inability of Congress to bring it to heel. Whenever its own powers are at stake, the Fed exercises an intellectual ascendancy over Congress that consistently results in an extension of Fed authority. This pattern reflects the dominance of bureaucratic expertise for which there is no solution as long as the specialized agency continues to exist.

The Fed's technical superiority notwithstanding, it is itself extremely vulnerable to the political pressures of the executive branch. (The remarks of Carter Glass and Marriner Eccles cited above are only two of the more dramatic examples of Treasury intervention.) These elements together result in a central bank with unlimited control over the monetary system. While it is advertised as an enabling agency for Congress, in practice the Fed is dominated by any strong-willed executive who covets the power of the purse as well as the power of the sword.

The FOMC makes all present-day decisions concerning the creation of money. While it uses the open market account manager at the Federal Reserve Bank of New York as its operational arm, the 12 Federal Reserve Banks as such have virtually no part in the money-creating process. Their existence does nothing more than provide an accounting statement in which the purchase of securities can be credited and the monetary base items debited. This entire operation could be managed in a building the size of a corner grocery store.

While the 12 Federal Reserve Banks are superfluous facades for the creation of base money, they are still valuable resources for the

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payments system. In this role they could function efficiently as private enterprises. Therefore, all the Federal Reserve Banks, branches, research centers, and appurtenances should be completely divorced from the government and placed in the hands of their stockholders. The "member banks" in name would become member banks in fact. They would administer the Federal Reserve Banks as clearinghouse associations, just as they managed their own clearinghouse organizations during the latter half of the 19th-century, and they would provide themselves with deposit insurance schemes according to their perceived needs. They would charge fees for their services to the banks that wanted such assistance, and would thus cover their costs. Having a source of income as private enterprises, they would no longer be a fiscal burden to the U.S. Treasury.

This proposed change is in part already taking place. The DIDMCA of 1980 requires the assessment of fees for many Fed services, billed to the depository institutions' accounts. Privatization would simply extend this practice to all bankers' bank services and make the whole industry a bottom-line enterprise. Since the bankers would own and operate their bankers' banks, they would have a self-interest in economizing the system's operations—the element Senator Glass found lacking in the Federal Reserve Board during the debates over the Banking Act of 1935.

Privatization of the 12 Federal Reserve Banks and their branches would still leave the money creating powers of the Board and FOMC untouched. These powers center on the control of the monetary base, which largely determines the conventional money stocks M_1 and M_2. Important for current policy is the growth rate in these stocks. The evidence is conclusive that a growth rate of the monetary base and the other money stocks greater than the growth rate in real product generates inflation and a corresponding misallocation of resources, without contributing any compensating benefits to the economy. A rate of growth in money between 0 percent and (say) 4 percent does not result in any measurable inflation, but it still allows the federal government to realize seigniorage revenue through its monopoly power to create money. The only way to reduce this seigniorage tax to zero is for Congress to proscribe any further increase in the monetary base. The base should be frozen at its present level and maintained there forever through routine procedures of the FOMC.

The results of this policy, which should be implemented very gradually but consistently, would likely be a long-run decline of prices (after a transition period) by an amount equal to the rate of growth in real product.[5] This rate of price level decline would be an

[5]Transition to a frozen base program in a way that would avoid significant social costs

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explicit quasi-interest rate for money held as cash balances. It would provide money holders with a bounty in proportion to the amount of money in their possession, so it would be similar to a negative tax. The economy's real stock of money, that is, the frozen nominal stock adjusted for the change in the value of the money unit, would increase by the rate of growth in real product (which would also equal the rate of decline in money prices). This appreciation would be the private sector's proxy income for what is now government seigniorage revenue.[6] Households and business firms would then have an incentive to hold money as it accumulated for routine disbursements, such as payrolls, rather than use untold amounts of real resources churning money into and then out of short-term interest-bearing money market accounts.

What are the economic disadvantages of a reasonably certain steady-state decline in prices? In the light of both history and theory, very few if any. Real economic growth in the United States between 1870 and 1897, when the price level declined at a rate of about 1 percent a year, was as great as, or greater than, growth in any comparable period in U.S. history (Friedman and Schwartz 1963, pp. 87, 93).

The argument from theory is based on the applicability of Phillips curve analysis, that is, the effect of the inflation rate on the level of employment. The evidence is that the long-run Phillips curve is perfectly inelastic: The rate of inflation has no long-term impact on the level of employment (Humphrey 1982, pp. 73–93). Therefore, a long-run declining price level has no employment disadvantages but has the resource allocation efficiencies already noted.

The desirability of a frozen base from a polity standpoint is equally compelling. The habitual uncertainty necessarily posed by the human discretion of the Fed Board of Governors and FOMC would disappear. This uncertainty requires, again, real resources for its minimization. The variable policies in practice have also proven highly costly to various sectors of the economy—for example, to the savings and loan associations during the 1970s and early 1980s.

Freezing the base has the final practical advantage of not requiring a complete restructuring of the existing monetary system. Federal

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requires separate treatment. All I deal with here is long-run equilibrium after money creation by the Fed has been scaled down to zero. The transition phase poses some challenging questions, but none that is insurmountable.

[6]The proposal for a zero-growth money stock is the policy side of Milton Friedman's "optimum quantity of money" argument (Friedman 1969, pp. 1–48). His analysis also anticipates a decline in velocity of about 1 percent a year, which is realistic for the transition period but not necessarily for a long-run steady decline in the price level. See also his proposal for freezing the monetary base (Friedman 1984, pp. 48–51).

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Reserve notes would still be legal tender as vault cash and hand-to-hand currency, and bank reserve accounts at the now-privatized Federal Reserve Banks would still serve as interbank clearing media and be convertible into Federal Reserve notes. The FOMC would continue to manage these base accounts in such a way that the total base would remain constant.

Throwing out completely the current payments system would serve no good purpose. Any damage the Fed has imposed on market participants has already been capitalized. Therefore, substituting a completely new system for the present one would be analogous to throwing away a useful capital structure simply because it was managed improperly.

The transition from a government managed monetary system to one organized by private enterprise in a market environment could be aided by one more reform—a true *beau geste:* privatization of the Treasury's stockpile of gold, which amounts to approximately 8,740 tons. This gold could be systematically sold off at auction as a means of covering current fiscal deficits, or it could be popularly distributed to the citizens of the United States on a per capita basis (approximately one ounce for each man, woman, and child in the United States). Such a distribution has precedent in an act of this very kind that took place in 1837 (Timberlake 1978, ch. 5, pp. 50–62). To make the current distribution even sweeter, the titles to the gold, redeemable into gold coins on demand, could be emitted as quasi-receipts by the IRS in acknowledgment of income taxes paid. People could then hold or dispose of the gold as they pleased. Some would convert it into gold ornaments or sell it to industrial users.

Many people who wished to retain ownership without paying the forgone cost of holding a "useless" substance would deposit their gold receipts as gold-based accounts in banks. The gold would not need to be assigned a dollar value; it would not become *the* standard. Its market value would be established in terms of demand and supply relative to the now-frozen stock of conventional money. Once an equilibrium price of gold appeared—in what I would suggest would be a very short period of time—gold could act as the growth element in the money supply, much as it did in the days of the gold standard. Its use as money, however, would not preclude the use of other competing monies that might arise through innovation in the money industry, nor necessitate disuse and abandonment of current conventional money.

All the ramifications that would follow from such a wide distribution of gold are not immediately inferable. However, I fail to see how they could be harmful. While gold, now widely distributed, might

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tend to fall in price because of the great increase in its marketable supply, its probable widespread use as money would also tend to raise its price. In any case, households in the economy would now own the gold. They would no longer be taxed by a money-creating central bank nor be subjected to the vagaries of policy practiced by that same institution.

The passage of time has blunted a general understanding of the Fed's original mission as well as the limited scope it was allowed for policy operations. Freezing the monetary base, privatizing the Federal Reserve Banks, giving the commercial banking system freedom to develop a competitive monetary market, and unblocking the U.S. Treasury's nonfunctioning gold stock would undo much of the harm that has befallen the monetary system since it was unwisely saddled with a central bank overseer. It would restore a freedom that was never intended to be violated.

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THE FED AS AN INSTITUTION

David I. Fand

I found Professor Timberlake's (1986) paper very interesting and learned a great deal from it. However, I had trouble deciding on my comments. It dawned on me that Professor Timberlake's paper summarizes five different topics, each of which deserves a monograph. The difficulty, then, is in reconstructing the five monographs summarized in this paper and developing appropriate comments since I have the summaries but not the original monographs.

In the first section of his paper, "The Pre-Fed Institutional Milieu," Timberlake reviews the financial institutional environment before the Federal Reserve was created. His description of what the monetary system looked like before the Federal Reserve came into being is extremely helpful. The pre-Fed monetary system featured four institutions: first, the gold standard was at the base of the system and provided the economy with high-powered money; second, the national banking system acted as a reserve depository for non-national banks; third, the independent Treasury occasionally manipulated its cash balances to effect changes in the quantity of reserves of the banking system; and fourth, the private clearinghouse system was able to serve as a lender of last resort by extending the means used for payments when the banking system was threatened with a shortage of reserves. The gold standard and the national banking system were regarded as acceptable but inadequate; the independent Treasury was seen as having undesirable interventionist characteristics; and the private clearinghouse system was viewed as a haphazard organization doing things of a make-shift nature that were possibly illegal. The Federal Reserve Act was, therefore, an attempt to channel the powers then exercised by the Treasury and the private clearinghouses into a formally structured institution that would be at once legitimate, independent, scientific, and efficient.

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In section II, "Institutional Aspects of the Federal Reserve Act," Timberlake deals with the nature of the Federal Reserve Act. And here Timberlake makes his point very well. In the discussions prior to enactment of the Federal Reserve Act, the notion of a "central bank" was definitely not a popular concept. It was politically unacceptable. Another label such as "A Regional Reserve-Holding Institution" had to be used. In fact, it is clear from his quotations that "federal bank" was almost a dirty word. If one wanted to gain support for a central bank, one would not use that term.

But if the Federal Reserve was not supposed to be a central bank, what was it supposed to be? In Timberlake's words, "if the Fed fetus was not to be a central bank, what was it in the eyes of its sponsors?" At this point, two concepts emerged. One group saw the Fed as a supreme court of finance; the other group as a public utility regulator similar to the Interstate Commerce Commission (ICC). And just as the ICC was established to keep railway rates "low" so the Fed should provide the public with a low rate of interest.

Consider now what the Fed would be doing in this kind of formulation. The Fed would operate as a "scientific" regulator of the payments system, the analysis presumably carried out by managers who in turn would be guided by scientific experts. They would have to determine the kinds of commercial paper banks could bring to the Federal Reserve Bank for rediscounts. They would determine what paper was "eligible" for the discount window. Eligibility then was taken to mean "real bills," issued for productive purposes at short-term—referred to in the literature as "two name, self-liquidating, short-term commercial paper." And, as is well known, the real-bills doctrine held that if the banking system restricted itself to that kind of paper, there would be no problem with either overissue or underissue of deposits. So much for what the Federal Reserve was supposed to be doing.

Recall now that advocates of the real bills approach to commercial banking viewed that doctrine as providing the banking system with a self-regulating adjunct to a self-regulating gold standard. The Federal Reserve on this approach was to do in the short run what the gold standard did secularly. The Fed was to provide seasonal money commensurate with seasonal production of commodities. It would adjust the money stock to the needs of trade; and, more importantly, it would displace the discredited "independent" Treasury. The Fed would also assume the clearinghouse function for banks. Under this approach, the Fed would provide the emergency relief in a crisis on an official, legal, and scientific basis as opposed to having the clear-

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inghouse doing it in a manner raising some question whether what they were doing was really legal.

Timberlake also points out that there was some awareness of, and some discussion, that there might be an inflationary bias since Federal Reserve notes would be fiat money. But Carter Glass, a principal sponsor of the bill, somehow convinced himself that if the banking system restricted itself to real bills—two-name self-liquidating, short-term commercial paper—there could be no inflationary bias.

But some of the discussants of the Federal Reserve Act worried a little bit. The monetization of commercial bank assets, no matter how real these assets were, requires some discretion. And how does one know whether or not one is dealing with a real bill? If the bankers and the Federal Reserve in negotiating credit extensions and new money are overly conservative, they will generate a deflation. But if they are too generous, they will provoke an inflation. A gold standard sets limits on their judgments, but some disequilibrium can result before the gold standard restraints come into being.

In the third section of his paper, "Congressional Norms in the Banking Act of 1935," Timberlake focuses on the period following the Great Depression. He points out that the view prevailing when the 1935 banking act was enacted attributed the troubles in the 1929–33 period to wild speculation and stock-market gambling. There was no clear conception that there may have been a serious, and profound error in the monetary theory and practice of the Federal Reserve. Timberlake discusses Senator Steagall's conception of how to avoid monetary and financial disasters. His approach was to replace the "wrong people" with the "right people." One of the important changes brought about in the 1935 Act was to abandon the notion of eligible paper and to concentrate instead on open market operations.

An important issue that emerged was the idea of control. The original Federal Reserve Act provided for regional control by the Federal Reserve Bank with general oversight by the Board of Governors. The Federal Reserve banks were seen as super-commercial banks vested with a public interest, but a public interest that would operate through the medium of member banks. But since the banking system was the vehicle, the bankers would be in control because they alone had the expertise to manipulate the system properly. And what was good for the banks, namely, adequate credit relief at critical times, was also good for the general public. But in the course of passing this act there was a major change, and the control went from regional Federal Reserve banks to the Board of Governors in Washington.

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In the fourth section of the paper, Timberlake deals with "The Federal Reserve System after 1935." The accord between the Treasury and the Federal Reserve was reached in 1951. From then until the mid-1960s, the Fed did nothing blatantly exceptionable. Money growth was fairly low and the rate of change in prices was close to zero for 15 years. The two major mistakes that occurred after 1965 were first, the Johnson administration pressured the Fed to inflate the monetary system in order to monetize its deficits; and second, the U.S. removed the gold cover against Federal Reserve liabilities. With this later action, we removed the anchor of the international monetary system and opened the door completely to monetary acceleration and inflation.

In the fifth section, Timberlake discusses "The Monetary Control Act of 1980," and in his concluding section recommends privatizing the Federal Reserve, abolishing open market operations, and distributing the official stock of gold to the public.

Timberlake has carefully studied the origin of the Federal Reserve and is an authority on this subject. He is puzzled by how the conception of the central bank that the Founders thought of as an institution with fairly limited powers became, in fact, the all-powerful institution that the Fed is today. The puzzle is further compounded by the fact that the Fed's record is not all that good.

The Fed has an amazing record of gaining in power even when their actions have contributed to the crisis which the new powers are designed ostensibly to prevent. And while the Fed Chairman and the Fed are held in high esteem right now in many financial circles, the fact is that their overall record, especially since 1971, has been rather poor. And yet, every year the Fed seems to be getting a little stronger.

To explain why the Fed is such a powerful institution, it may help to focus on the following question: Why is it that the policy activists, the fine tuners, the interveners, and the redistributors all seem to be drawn from the fiscalist camp? And why is it that monetarists apparently seem to be more favorably disposed toward rules and guidelines? On consideration of this question, I discovered that monetarists had an activist phase too. In the 1920s, when open market operations were first discovered, many activists and the fine tuners oriented themselves toward monetary policy. And then after the Great Depression and the debacle of the 1930s, some of these early activists developed greater appreciation for *rules* and *guidelines* which emerged as the postwar monetarism in the 1950s. And just about that time, other activists, impatient with rules and guidelines, adopted fiscalism.[1]

[1]See Fand (1970).

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What we apparently observe is a kind of cultural lag. When one first begins, one tends to favor activism; and, as one becomes older, one becomes a little more conservative. If allowance is made for this fact, it could explain why the Federal Reserve was able to gain considerable power during a period when monetary fine tuning appealed to the activists and fine tuners of the 1920s.

Timberlake, in discussing the Monetary Control Act, makes some very serious charges about the Fed, and I would like to see this case documented in greater detail. It would be worth having a definitive record of that.

In connection with some of the errors that the Fed has made, many of us wonder why it is that in 1984 we had about 5 to 6 months of almost zero money growth. We also wonder why the Federal Reserve seemingly announced that it was going to operate with a free reserve target. This free reserve target was very carefully reviewed in the literature some 25 years ago and was thoroughly repudiated. Indeed, some of the annual reports of the Federal Reserve in the early 1960s suggest that the Fed itself suspected that there was something wrong with this doctrine.[2] Yet, all of a sudden, this doctrine comes to life again in 1984.

I am not suggesting that doctrinal error is exactly, and precisely, what misleads the Fed. Some people suggest that while the Fed talks about free reserves, it actually uses an interest rate target and that free reserves may just be a code word for an interest rate target. The fact is we had 5 to 6 months of almost flat money growth in 1984 and a sluggish economy for almost a year under this free reserve approach, and I do not know why the Fed persists in this approach.

Timberlake's final recommendations—that we should privatize the Fed, distribute the official gold stock, freeze the monetary base, and abolish open market operations—are bold suggestions. They are of a far-reaching significance and need to be explained and supported in greater detail.

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[2]See Fand (1963).

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INHERENT CONFLICTS OF U.S. MONETARY POLICYMAKING

Lawrence K. Roos

I have come to the realization that perhaps the best contribution I can make to the debate over monetary policy is to discuss the "inherent conflicts" of monetary policymaking as it is currently conducted in the United States. I do not presume to be able to discuss all the problems of policymaking, nor can I presume to prescribe acceptable solutions to the multitude of problems that have vexed so many for so long. Instead, I would like to present a few of the most meaningful impressions that I gathered during the seven years in which I participated in monetary policymaking. I will leave it to you to decide which of these impressions are valid and how the problems they suggest might be corrected.

In line with the present emphasis on "truth in labeling," I must remind you that my impressions are somewhat subjective. I anticipate that some of my colleagues in the policymaking process will, no doubt, disagree with each and every one of them, and that some may even have a totally different view of what the process is all about.

A Policymaker's View of the Policymaking Process

What Monetary Policy Should Be

First, let me state what I believe monetary policymaking should be. Under our institutional arrangement, the Federal Reserve System possesses, for all practical purposes, only one tool of policy implementation: open market operations that inject or withdraw bank reserves into and from the banking system. It follows that, if there is a primary goal, or a set of *consistent* goals that we desire to achieve, monetary policy must be, simply, a process for producing the changes

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in bank reserves necessary to achieve such goals. This, in turn, requires both a theory that describes the relationship between changes in reserves and the achievement of goals, and empirical estimates of the magnitude of the impact of such changes and the timing involved. In addition, there must be some agreement among policymakers about whether and how to respond to "shocks" or "surprises" that might occur along the way to achieving desired goals.

Because we live in an open and free society—in the political sense—monetary policy goals must be agreed upon by, and known to, the public. And the method chosen by policymakers to achieve those goals must be clearly understood by the public. Policy actions must be easily observable, well explained, and, of course, consistent with the goals sought. And finally, it is essential that policymakers be held accountable for the achievement of their announced goals.

Shortcomings of the Policymaking Process

In reality, very few of these elements that I believe to be so crucial to policymaking currently exist. To start with, there are no clear, achievable goals promulgated by monetary policymakers. Never once in my participation in meetings of the Federal Open Market Committee (FOMC) do I recall any discussion of long-range goals of economic growth or desired price levels. It was like trying to construct a house without agreeing upon an architectural design. Instead of seeking a few achievable goals, the Federal Reserve is supposed to solve all sorts of problems, including inflation, unemployment, lagging real output growth, high interest rates, balance of payments disequilibrium, volatile exchange rates, depressed stock prices, a sagging housing industry, and the world debt crisis. Now, asking monetary policymakers to do all this is sheer nonsense. Such diverse goals represent a "wish list" designed for achieving utopian objectives; those who would have the Fed seek them pay no attention either to their consistency or to what monetary policy is capable of achieving. Imposing such a laundry list of goals and wishes on the Fed reflects a total lack of understanding as to what the Federal Reserve is able or not to do. This kind of thinking hampers the workings of the FOMC. For within the FOMC, there were usually as many goals as there were chairs around the table. In my experience at the Fed, I cannot recall any significant ranking of objectives or if the diverse goals considered were mutually consistent either with one another or with the policy actions being considered. To be sure, everyone agreed that they wanted full employment, stable prices, low interest rates, a booming housing sector, thriving farmers, and a

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prosperous financial community. But I recall no consensus on long-range goals nor do I recall serious efforts to set policy on other than the shortest time horizons.

One can, of course, say that at different times, different goals are appropriate; this has been the conclusion of those who delight in econometric estimations of Fed "reaction functions." However, the net result of such a disorderly pursuit of transitory goals is likely to be precisely what we have experienced over the past decade—namely, highly variable money growth, volatile financial markets, and real growth that has swung from boom to bust. Perhaps because there was no clearly defined set of long-range consistent goals, there has been no general agreement among policymakers as to the effects of policy actions.

The existence of the "eclectic" school of policymakers, which encourages shifting from one indicator to another and thus opts for having multiple indicators to choose from, reflects the fact that there are many different theories about the relationships between actions and goals. We are all familiar with past disagreements over whether interest rates, M1, M2, or M3 are the most appropriate indicators, and the heated discussions of such issues in the public press. I must agree that there may be some legitimate disagreements, as there always are when theories are compared. But as long as there is no consensus as to which goals are being sought or what theories are to be used in achieving them, there can be neither consistent monetary policymaking nor achievement of desired goals.

One of the most vexing problems in monetary policymaking is the question of timing. Substantial evidence exists that the timing of the impact of changes in bank reserves differs across various measures of economic activity. The price level, for example, is affected by changes in bank reserves, and associated changes in money, with a relatively long lag—upwards of three to five years, depending on whose empirics you trust. Output, on the other hand, is affected by changes in bank reserves, and the associated change in money, with a considerably shorter lag, perhaps only two to three quarters; and the output effect is only transitory. Thus, if one's goal is to achieve reduced inflation, or price level stability, one's policy horizon must be three to five years distant; on the other hand, if you want to achieve some transitory impact on output, you will lower your horizon to several quarters ahead. In reality, although policymakers discuss economic activity projections for a year in the future, there is little attention paid to formulating policy as a means of achieving clearly defined goals. Policy prescriptions are set, generally, from one FOMC meeting to another; thus, the span of these prescriptions is no longer

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than two or three months. As a result, we experience base drift, frequent violation of longer-term targets, and undesired variations in economic activity.

Moreover, by dealing with such very short time horizons, it is easy to come to believe that monetary policy has no effect on economic activity; that, instead, the reverse is true. Since over short periods of time much of economic activity is indeed predetermined, the only effect that monetary policy can have is on money market conditions. As a result, the focus of policymakers, and of policy itself, is channeled toward interest rates, especially short-term rates; the longer-term goals receive scant attention, except when inflation or output problems reach crisis proportions.

Finally, given a multiplicity of goals, targets, and indicators, there can be no real accountability to Congress or to the public in general. While a lack of accountability may be comforting to policymakers, it produces its own set of problems. There is an old saying that "thieves and gypsies never return to the same place twice"—presumably because they will have to account for their previous actions. Monetary policymakers, on the other hand, have no such qualms or constraints; they can, and do, return again and again to the same policies despite previously unsatisfactory results.

I would like to emphasize that, while these impressions are critical of the monetary policymaking process, I do not believe that they reflect on the conscious desires of policymakers. Policymakers want to do the right thing! The problem lies in the absence of a set of consistent goals for monetary policy to achieve. Without such goals, it is impossible to reach consensus about the theory to use or a specific monetary target to seek. Without these, it is uncharitable to demand accountability on the part of monetary policymakers.

Difficulty of Consensus and Persistence of Ignorance

Whether such clearly definable goals can be agreed upon in the present political environment is not at all clear. In a climate of diverse and differing philosophical beliefs, it is difficult to achieve a consensus. Another major stumbling block is the "plain ignorance" of economics that seems so widespread. For example, it is commonly believed by the public, and thus by politicians, that the Federal Reserve can control interest rates at will. Despite reams of evidence to the contrary, such erroneous beliefs inevitably produce political pressures on monetary authorities to lower interest rates by speeding up money growth, even at the expense of all other goals.

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In sum, my main point is simply that we must have clearly defined and achievable goals on which to base policymaking decisions. Furthermore, it is not enough to hammer out clear and consistent goals if public and political pressure is expected to be exerted on the Fed to abandon them whenever it seems like "the politically expedient thing to do." Finally, there must be a clear recognition by the public of what the Fed can and *cannot* do. Without such a consensus, even the best conceived goals will not stand a chance of surviving.

Addendum: Economic Forecasting and Monetary Targeting*

In theory, there is a direct relationship between M1 growth and output in the short run and prices in the long run, after a lag period. I do not think the FOMC ever really tries to set, within its own closed-door deliberations, specific targets for output in the future or for the price level. When the discussion is held, I have always had the feeling that the discussion was "Where do you think the economy will be a year or two in the future, and how can we best set targets so we won't have egg on our face if this doesn't come about?" Most of the people I knew in the FOMC did not really feel that policymaking could have an impact on what was going to happen. Instead, it was viewed as being reactive and defensive. In terms of policymaking, whatever was done was not too far out of sync with what was going to happen economically due to all of these uncontrollable (in their mind) factors that move the economy. In other words, policymaking was not looked at as I interpreted it—as a means of getting from here to there. Rather, it was looked at as a means of trying to defensively protect the Fed from being out of step with what most of the members felt would happen despite monetary policy decisions.

Moreover, I do not think that the leaders and the staff of the Federal Reserve actually feel that money growth can be controlled, even over a one- or two-year period. I can tell you without violating any confidences that more than once when we met, when the money growth M1 figure was disclosed since the previous FOMC meeting, someone would say that we lucked out this time. There is not a serious belief

*This addendum is Mr. Roos's reply to the following questions asked by Godfrey Briefs of the House Banking Committee during the Cato Institute's third annual monetary conference (February 21–22, 1985): "Mr. Roos, could you tell us more about the relationship between the forecast of the economic outlook and the manner in which the monetary aggregates are decided? Is there a cause-and-effect relationship? Is there mutual interdependence? What is the role of the forecast in arriving at the monetary aggregates?"—ED.

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that this machine can be guided by controlling money. Indeed, I do not believe that the control of money growth ever became the primary priority of the Fed. I think that there was always and still is a preoccupation with stabilization of interest rates.

When anything goes haywire, the Fed does the most convenient thing. When M1 grew too quickly, all of a sudden the Fed in its brilliance said "M1 has been distorted." M1 was not really distorted all that much. They adopted other multiple targets instead of M1. When something is not working, you gather a bunch of other things. If you have enough "other things" when you go to Congress, you are bound to hit the target on one or two of your objectives even though they have no relevance to output or the price level.

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HOW THE FED CROWDED OUT REAGAN'S ECONOMIC POLICY

Paul Craig Roberts

The Split between Fed Power and Accountability

There is a fundamental problem with the Fed's policymaking function. Under the U.S. Constitution, government is not supposed to convey power without accountability. But as a former president of the St. Louis Fed acknowledges, accountability does not seem to be the case with the Federal Reserve (Roos 1986). Perhaps this mattered less in the past when there was a gold standard and fixed exchange rates. Today, however, the advent of fiat money and flexible exchange rates has removed practically all constraints on the Fed. The result is enormous discretionary power that allows the Fed to act in self-protective ways that can crowd out the policies of an elected government.

The Self-Protective Fed

The Fed's rogue monetary policy during 1981–82 is a good example of an unaccountable central bank acting in self-protective ways and crowding out the policies of an elected government. To a large extent, the Fed's policy, which resulted in an unexpected and severe recession and in an unexpected collapse in the inflation rate, frustrated the Reagan administration's efforts to shift the emphasis of economic policy toward greater private sector incentives and growth. The recession forced President Reagan on the defensive early in his administration, causing him to lose control of the budget while simultaneously confronting him with the largest budget deficits in our history.

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The truth starkly contrasts with the widespread belief that a courageous Fed followed a conscious gameplan and conquered inflation despite an excessively stimulatory fiscal policy. In late 1980 and early 1981 when the new administration was putting together its economic policy, there was an almost universal consensus that not very much could be done about inflation—and certainly not very quickly. The administration intended to emphasize economic growth, but it was confronted with the "Phillips curve," which argued against the prospect of real economic growth and a declining rate of inflation. At the time, forecasting models such as DRI had a "core rate of inflation" of 10 percent, which was believed to mean that 10 percent inflation was a floor even with restrictive monetary and fiscal policies.

Given the constraints of conventional thinking, a proposal from the Reagan administration to abruptly reduce inflation would have had no credibility. Moreover, many monetarists were opposed, at least in principle, to attempting an overnight cure of inflation. From their point of view, using recession to bring down inflation was pointless, because the resulting unemployment puts tremendous political pressures on the system to reflate. Monetarists wanted to break this roller coaster cycle.

In 1981 the administration's supply-side fiscal policy was a reduction in the tax burden on labor and capital. This was a disinflationary policy, because it lowered the cost of production. However, the policy was widely misinterpreted by irresponsible economists, journalists, and politicians as a Keynesian demand stimulus coming at a time of a 12.5 percent inflation rate, a $50 billion budget deficit inherited from the Carter administration, 10 percent "core inflation," and a Phillips curve environment. All of this was following a decade of rising inflation expectations. The Fed was convinced, largely by conservative Republican economists, that inflation was going to explode and that the Fed would be blamed. The Fed responded in a self-protective way and simply turned off the money, reasoning that an administration with monetarists in office could not blame the Fed for inflation if there was no growth in the money supply. The Fed was as surprised as everyone else by the unexpected collapse in inflation and by the severe debt and liquidity problems that followed in train.

When President Reagan was inaugurated the prime rate was at a peak of 21.5 percent. Perhaps these high interest rates were Reagan's legacy from Volcker's attempt to reelect President Carter by providing rapid growth in money whether measured by M1 or the St. Louis base, from July through November of 1980. The conventional wisdom was that a staunch conservative like Reagan could not be elected

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President, and the outpouring of money by the Fed may have caused markets to expect a continuation of the upward ratcheting of inflation. Whatever their cause, the high rates of interest, or the uncertainty that they reflected, had a negative impact on the economy.

Ignoring Reagan's Stable Money Objective

The Reagan administration intended to deal with the situation by providing moderate, stable, and predictable money growth that would first stabilize the inflation rate and then gradually bring it down. Once markets saw that money growth and inflation were under control, interest rates would fall faster than the inflation rate due to changed expectations. The February 18, 1981 report that announced Reagan's economic program states: "The economic scenario assumes that the growth rates of money and credit are steadily reduced from the 1980 levels to one-half those levels by 1986."

The Reagan administration also intended to contribute to lower real interest rates with tax policies that would increase private sector saving and with expenditure policies that would reduce the growth rate of federal spending. From 1975 through 1980, inflation interacting with the progressive income tax and depreciation allowances had reduced private sector saving by $350–$450 billion, depending on how it is measured. During this same period federal spending had grown faster than GNP, resulting in a cumulative federal deficit of $368 billion.

Unfortunately for Reagan's economic policy and for millions of people in the economy, the Federal Reserve did not provide the moderate, stable, and predictable growth of money that the central bank agreed to provide. First, the Fed allowed M1 to increase sharply from February through April 1981, which had bad psychological effects and was taken as confirmation in many quarters that the administration intended to monetize deficits. Then the Fed slammed on the brakes and held M1 growth at about zero for six months. Before the Fed revised the data, the figures showed less money in the economy in October 1981 than in the previous April. This is a very sharp slowdown, especially coming off the previous acceleration. All in all, in 1981 alone the Fed produced 75 percent of the total reduction in money growth that we intended to spread over a six-year period.

In 1982 the Fed repeated the pattern, allowing rapid money growth in December 1981 and January 1982 and then bringing it down to a very low rate for six months. The monetary base (St. Louis, 3-month growth rates) began decelerating in December 1980 and continued until November 1981. Velocity of money did not rise in 1981 to

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compensate for the decline in money growth, and in 1982 velocity fell. Unless the well-documented findings of monetarists are completely dismissed, monetary policy would seem to be a principal cause of the recession.

Fiscal Policy and Inflation Hysteria

Turning to fiscal policy, Keynesian measures show that it was also tight in 1981. According to the Congressional Budget Office (1982), the high employment budget showed a $7 billion surplus for 1981.

Fiscal policy was depressing GNP and tax collections from a supply-side perspective as well. The delay and phase-in of the tax cuts encouraged people to shift income earning activities to the future, where tax rates were lower, and to shift tax deductions and credits to 1981 where their value was highest. The result was to worsen the economy and the deficit in 1981.

This argument is not a supply-side rationale offered after the fact of the recession. It was made prior to the election of Ronald Reagan in response to Martin Feldstein's proposal to delay any tax cuts in order to balance the budget. He argued in the summer of 1980 that the way to avoid large budget deficits as a consequence of cutting marginal rates was to enact in the present a schedule of future tax cuts. People would begin working and investing more in anticipation of the lower tax rates, he claimed, and the growth in the tax base would generate the revenues to pay for the subsequent tax cuts.

I argued in the *Wall Street Journal* (1980) that the results would be the opposite of what Feldstein imagined. Supply-side fiscal policy works by increasing the after-tax return to labor and capital. When marginal tax rates fall, both leisure and current consumption become more expensive in terms of forgone income, causing people to shift into work out of leisure and into investment out of current consumption. However, if people know that the prices of leisure and current consumption are going to rise at a future date, they could rationally decide to enjoy both while they are still cheap, just as consumers purchase commodities in anticipation of future price increases.

My argument was theoretical, but it was validated by the practical advice that accounting firms and tax lawyers gave their clients. For example, on public television the very day the 1981 tax reduction bill was signed, MacNeil and Lehrer interviewed tax accountants who explained how to take maximum advantage of the tax cut by postponing income and bringing deductions forward to the 1981 tax year. On August 25 Sylvia Porter's column began: "Millions of you, in corporations ranging from salespersons to physicians to lawyers

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can shift portions of your income from 1981 to 1982. Start arranging to do so now, and you will be able to cut your federal income taxes substantially." On October 26, 1981 *Business Week* wrote about the "flood of advice on postponing income and accelerating deductions."

How were economists (and some Reagan policymakers) responding in 1981 to a recessionary monetary and fiscal policy? Almost universally they were predicting inflation. Among many, Walter Heller was convinced that the proposed tax cuts would inject too much inflationary purchasing power into the economy. He asked in the *Wall Street Journal* on February 10, 1981: "How can the economy absorb that big an expansionary punch without aggravating our already intolerable inflation?" A few days later *Washington Post* columnist Hobart Rowen, who stays tuned in to the Brookings Institution, declared that the tax cut was "so big that traditional Republicans and many Democrats regard it as dangerously inflationary." So did Mr. Rowen: "Even if Congress were to pass budget cuts that matched the tax cuts dollar for dollar, there is nothing in the fiscal program—in the view of those not addicted to supply-side theory—that works against inflation. The nation would still be face to face with OPEC, Reagan's oil deregulation orders, high farm prices, and escalating wages. And the Federal Reserve would be following a restrictive credit policy maintaining high interest rates, themselves a collateral cause of inflation."

Over the succeeding months the inflation hysteria grew. On May 11, Senate Finance Committee Chairman Bob Dole told the *New York Times* that he personally continued to fear that the tax cut would be inflationary. At a July meeting of the Board of Governors of the Federal Reserve System with its economic consultants, Alan Greenspan expected that a restrictive monetary policy would be overwhelmed by the tax cuts, and inflation would explode. Monetary policy was "the junior partner," Greenspan said, and could "do nothing other than a weak rear-guard action." There can be little doubt that Volcker was encouraged to overreact by clamping down on money growth so that he would not be left holding the bag for an inflationary administration.

Almost every week during 1981 brought a new hand-wringing from Herbert Stein, who was certain that wild-eyed supply-siders were going to send the economy up in the smoke of inflation. So was the *New York Times*, which on July 29 editorialized again that "the Great Tax Cut of 1981 . . . promises more inflation."

An old-fashioned Keynesian belief in the predominance of fiscal policy had combined with a natural envy of the influence that a handful of supply-side economists had on national economic policy

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to whip up an inflation hysteria even while the economy was plummeting into recession. The inflation hysteria that was so assiduously cultivated by economists and the media was a principal cause of the recession. In such an atmosphere not even the Treasury secretary could succeed in calling attention to the recessionary monetary policy. My additional argument that fiscal policy itself was recessionary had an even smaller audience.

Secretary Regan's warning in the first week of August 1981 that the Fed was leading the economy into recession had no effect. By October the situation was desperate. Regan again called for the Fed to honor its own targets and to loosen the extraordinarily tight monetary reins. On October 19 *Time* described the Treasury secretary as a "wanderer from the true faith," and gleefully told how CEA Chairman Weidenbaum had called Regan and asked him, "What's going on here? We've got to be talking with one voice."

What was going on was the economy was sinking into the black hole of recession, and the "one voice" was pretending that the problem was inflationary deficits caused by the tax cuts. Weidenbaum, *Time* reported, "was opposed to the Fed pumping more money into the economy now"—a strange point of view considering that the M1 numbers showed that the Fed had been *pumping money out* of the economy for the past six months and was far below its target. OMB Director David Stockman rushed off to a breakfast meeting with reporters the day after Regan's warning where, *Time* reported, he "contradicted Regan by arguing that the Fed should keep the brakes on the money supply."

The Fed's Crowding Out of Reaganomics

Former Treasury Secretary William E. Simon has said that as soon as a President is elected he is captured by the past. Ronald Reagan was no exception. Ostensibly the President was bringing about a big change in economic policy. Change itself is unsettling even if people are convinced that it is needed. Even very positive changes disrupt many relationships, cause uncertainty, and depreciate human capital. Big change can succeed only if the government shows confidence. But the President brought on board too many people who did not share his faith in his policies and who were not prepared to assume the risks of implementing them. As a result, internally the administration lacked confidence, and it was reflected publicly in many decisions, such as the one to delay the tax rate reductions in order to balance the budget. The Fed perceived this lack of confidence and moved to take control over economic policy.

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The dead hand of the past overwhelmed many of the hopeful changes that Reagan intended for the economy. From the beginning the emphasis was shifted from hope to gloom, and from economic growth to balancing the budget with austerity. Republican economists like Alan Greenspan, Herbert Stein, and Arthur Burns were very negative about the President's economic program. They believed that if nothing was done to stimulate the economy, inflation might be gradually squeezed out as long as the budget was balanced. Greenspan did not lack allies in the administration and the Senate Budget Committee.

Before the new administration was a month old we were engulfed in such a gloomy atmosphere that a dreary forecast was labeled a "rosy scenario." Despite the restructuring of the tax code envisioned to improve saving and investment incentives, the real GNP growth projections in the February 1981 forecast were lower than the economy achieved in 1976, 1977, and 1978. They were significantly lower than the original forecasts of the Carter and Ford administrations. Yet the hyperbole flew fast and loose. In an editorial on March 9, 1981, the *Washington Post* charged that President Reagan's "scenario lies far beyond the limits of any past experience in this country or any other industrial democracy."

The inflation outlook was also gloomy due to the influence that core inflation had on Weidenbaum and Greenspan. According to the DRI model at the time, core inflation was 10 percent, which meant that monetary policy could do little. The conflict between the lower nominal GNP path based on the monetarists' assumptions about the growth rate of money and the higher inflation rate projections demanded by the core inflationists was resolved when David Stockman arbitrarily raised the nominal GNP path in order to project a balanced budget. This created the famous "velocity problem" (the projected GNP being too high for the projected money supply to support without a dramatic increase in velocity of circulation) and led to a chorus of criticism from Keynesian economists, who had never previously put any store in monetarist ruminations about velocity.

Had the traditional economists been blamed for insisting on core inflation and a balanced budget, much less damage would have been done to the credibility of the President's economic program. Instead the rumor was spread that the supply-siders were playing with the numbers in order to project real growth and lower inflation, an impossibility according to the Phillips curve. The effect was to spread the insidious belief that the President's program was unrealistic and based on nothing but an extremist ideology. Some administration

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sources themselves fed this notion as part of their fight for power. All of these things undermined the confidence that is necessary for change to succeed and allowed the Fed to become the arbiter of economic policy.

The supply-side economists in the Treasury were prepared to accept deficits as the price of restructuring the tax code and bringing down inflation. We believed the deficits would be kept within reason by controlling the growth of government spending and that spending restraint and economic growth would eventually balance the budget. We were opposed to making a balanced budget the issue or goal of the economic program. We knew that if a balanced budget became the issue, traditional Republican economists would shift the focus of policy to austerity, which would worsen the performance of the economy and enlarge the constituencies for federal spending programs. Even if we could succeed in holding on to the President's program internally, we knew that once a balanced budget was the goal, the President would be at the mercy of the Congress and the Fed. The former could destroy him by spending and the latter with tight money.

In retrospect the Treasury was right. Once Stockman succeeded in making the deficit the issue, the old Republican strategy of trying to fix the budget prior to fixing the economy prevailed. First the tax cuts were delayed in the name of a balanced budget—while the Fed closed down the economy with tight money. The recession produced deficits, and the Republicans responded by raising taxes in the middle of a recession, repealing most of the incentives for business investment contained in the 1981 tax reduction. This was followed by more tax increases. Continued agitation for further tax increases has hovered over the Reagan presidency like a black cloud. Policymakers and economists were soon making more grandiose predictions about the economic benefits of raising taxes than Art Laffer and Jude Wanniski had made for lowering taxes.

On the monetary policy front, so far, "stop-go" has prevailed over the Reagan administration's request for moderate, stable, and predictable growth in the money supply. Successful investing continues to depend on skill at guessing the Fed's behavior.

One might say that it is more important that inflation is down than how it came down, a point that might have some merit. But the confused and unexpected—indeed, accidental—way in which inflation was brought down imposed substantial economic and political costs that have been shifted to President Reagan and the new fiscal policy. Moreover, the implications of these costs are not yet fully known. The large budget deficits may yet lead to incentive-destroy-

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ing tax increases or to a weakened national defense. Policymakers might respond inappropriately to the dollar's sharp recovery from the historic low to which it was driven by a decade of rising inflation. The political costs of the sudden erosion in the asset values underlying farm debt, for example, are yet to come in. The world debt crisis is not yet over, and the implications of the enlarged role of the International Monetary Fund in the international financial system are not yet clearly visible.

Making the Fed More Accountable

Disagreement among economists, disunity in administrations, and political competition all work to enhance the Fed's discretionary power. The policy situation can be improved, and the Fed's integrity enhanced, with some small changes that will help to make the Fed more accountable. The Treasury secretary could be reinstated as a member of the open market committee. That would allow the administration to have knowledge of what the Fed was doing, and it would provide occasions for the Fed to listen to what the administration was saying. The terms of the members of the Fed's Board of Governors could be reduced from 14 to 7 years to increase turnover and the infusion of fresh ideas. It might also be helpful if some things were done to reduce the secrecy with which the Fed conducts its operations. For example, policy changes might be announced immediately.

None of these suggestions will provide a panacea. Conventional wisdom will always be flawed and this, together with the general political competition between parties, within parties, and among economists themselves, will always create a fertile environment for the discretionary exercise of power. As long as governments are making policy, there will be inescapable dangers.

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A PROPOSAL TO CLARIFY THE FED'S POLICY MANDATE

Robert P. Black

Importance of Evaluating Monetary Policy

Some people might wonder why the Federal Reserve's policy-making function would interest anyone at this particular point in history. After all, the general economic and financial picture at present is reasonably bright. Although the rate of real economic growth has slowed somewhat from the exceptionally robust pace of the first six quarters of the recovery, overall activity is still rising. Further, in the financial arena, interest rates have declined significantly in recent months, the nervousness that was so prevalent in banking and securities markets has diminished, and equity prices are at historically high levels. Finally, and perhaps most important from a longer run perspective, the inflation rate has remained low by the standards of recent years, to the surprise of some economists who had expected the rate to be moving back up by now. To be sure, the nation still faces a number of serious economic problems. But the most pressing difficulties would seem to lie in the areas of fiscal and trade policies rather than monetary policy per se.

There are at least some people, however, who believe that monetary policy is still an appropriate topic for discussion. Two reasons can be given for this continued interest. First, some economists believe that the dangers presented by the federal deficit have been exaggerated and that the more important near-term threat to the business expansion and future prosperity is the possibility of an excessively restrictive monetary policy. This concern that Fed policy

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might be too tight has diminished in recent months as interest rates have declined and growth in the money supply has resumed, but it is likely to reemerge quickly if economic activity turns out to be weaker in the months ahead than is now anticipated.

Second—and in my personal view, more important—it is by no means clear that the longer run inflation problem has disappeared. For one thing, the recent inflation performance looks favorable only when compared to the exceptionally rapid increases in the price level in the late 1970s and early 1980s. In this regard, it is worth recalling that the inflation rate when the Nixon price control program was imposed in August 1971 was very nearly the same as it is today—about 4 percent. It is also worth remembering that an inflation rate of 4 percent leads to a doubling of the price level every 17.5 years.

If households and business firms could know for certain that inflation would remain at 4 percent indefinitely, maybe they could adjust to it and live with it. Even though longer run inflationary anticipations are probably lower now than they were a year ago, however, I do not sense any strong or widespread conviction that moderate inflation is here to stay. On the contrary, I think that many people are aware that measured inflation is currently being held down at least to some extent by the strength of the dollar in the foreign exchange markets and by the decline in oil prices. They realize that somewhere down the road the favorable effect of these conditions on the price level may disappear and that, if and when it does, the risk of another round of high inflation will increase.

It would seem then that inflation—despite a significant slowing—is still a serious problem in the sense that it could well reaccelerate in the future in an unpredictable and therefore highly disruptive manner. That possibility alone is enough to make an evaluation now of the strategy of monetary policy worthwhile. At the same time, the generally favorable immediate conditions I noted earlier may enable us to conduct this evaluation with a broader and longer run perspective than would be possible if current Fed policy were a pressing current political issue.

Ambiguous Nature of the Fed's Legislative Mandate

It is generally true that a clear and attainable objective is a necessary condition for the success of any policy strategy. As I have argued elsewhere, however, it is not at all obvious that Fed monetary policy has such an objective (Black 1984). This lack of an attainable objective is largely the result of the ambiguous nature of the Fed's legislative mandate. The most direct statement of the current mandate is con-

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tained in Section 2A of the Federal Reserve Act, as amended by the Humphrey-Hawkins Act of 1978. This provision states that Fed policy should promote maximum employment, stable prices, and moderate interest rates. These objectives are to be pursued "effectively." Further, they are to be pursued with due attention to production, investment, real income, productivity, and international trade and payments, as well as employment and prices. No guidance is given regarding the priorities of these various objectives or the time horizon over which the Fed's success in achieving them is to be evaluated.

It should be obvious to anyone that a mandate which instructs the Fed, in essence, to pursue all desirable economic objectives is no basis for an effective strategy for monetary policy. Such a broad mandate merely transfers all of the hard strategic choices regarding priorities, time frames, and what is and what is not feasible to the Fed, which is in no position to make them precisely because it has no clear mandate. In short, the lack of specificity in the Fed's mandate puts it in a Catch 22 position.

In practice, of course, policy choices have to be made, and they are made. Because there is no operationally meaningful objective, however, the choices are necessarily made in a highly discretionary manner that gives substantial weight to current, very short-run economic and financial conditions. I use the word *necessarily* quite deliberately. Because the Fed's current mandate includes so many diverse objectives, it is constantly under pressure to correct whatever economic problem is perceived to be most pressing at the moment, whether it be high interest or exchange rates, unemployment, inflation, or something else. In this kind of situation, the Fed must have the flexibility to react quickly and decisively to emerging economic conditions and to particular economic and financial problems as they arise. Viewed from this perspective, the frequent references of many Fed officials to the need for discretion and judgment in conducting monetary policy on a day-to-day basis are not difficult to understand.

I believe that a fairly convincing case can be made that any public institution with as many diverse responsibilities as the Fed must have some degree of freedom to deal with contingencies. But the dangers associated with conducting monetary policy in a predominantly discretionary manner that focuses principally on the current state of the economy are well known. First, monetary policy actions affect the economy with long and variable lags. These lags, coupled with the inability of economists to forecast future economic conditions with high confidence, present the risk that a highly discretionary policy will tend more to destabilize the economy than to stabilize it. Second, a discretionary approach to policy fosters the notion that

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the Fed is able to fine tune the economy satisfactorily even in the absence of compelling evidence that such is the case. Finally—and somewhat paradoxically—discretionary policy tends to subject the Fed to the political pressures of the day, an outcome that its framers were eager to avoid. Whenever special interest groups realize that the Fed conducts monetary policy in a discretionary manner, they typically increase the pressure they put on the Fed to pursue the particular goals they consider important.

For all of these reasons, it would seem to make sense to narrow the Fed's mandate in order to reduce its need to rely heavily on discretion in conducting policy. Such a narrowing would enable the Fed to develop a cohesive strategy with clear and feasible objectives and, in my opinion, would very likely improve the quality of monetary policy over time.

Narrowing the Fed's Mandate to Price Stability

If you have accepted my argument to this point, I would like to recommend a particular objective to be the preeminent and perhaps even the unique goal of monetary policy—price stability. By price stability I mean, of course, stability in the aggregate price level or, what amounts to the same thing, stability in the general purchasing power of money. I realize that this is not a new idea.[1] I also recognize that a detailed recommendation would have to specify very precisely the meaning of the word "stability." The general notion of price stability should be sufficiently concrete, however, to allow me to make my main points.

There are a number of good reasons for elevating price stability to a predominant position among the objectives of monetary policy. Let me focus just briefly on three that seem especially important to me.

First, price stability is a feasible objective for Fed policy. The close longer run correlation between the growth of monetary aggregates and the price level is one of the most firmly established empirical relationships in economics. It is true that institutional changes, technological advances, and other developments sometimes distort this relationship temporarily. But the technical ability of the Fed to stabilize the price level over a period of years through longer run control of the monetary aggregates is not seriously disputed. Since there is widespread agreement that price stability is a feasible goal for monetary policy, adopting it as the principal goal would almost certainly increase the credibility of Fed policy substantially.

[1]See Fisher (1934) for an interesting account of earlier proposals.

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Second, while there is general agreement that the Fed can achieve price stability through monetary policy, there is much less agreement regarding the Fed's ability to influence the other variables mentioned in its current mandate in a systematic and socially beneficial way—particularly real variables such as employment and production. Back in the 1960s, when the Phillips curve literature and the idea of a trade-off between inflation and employment were the intellectual basis for much macroeconomic policy, many economists believed that monetary policy could contribute to the close control of real variables. A major conclusion of monetary research in the 1970s and 1980s, however, is that efforts to manipulate real variables will be thwarted by changes in the rate of inflation expected by the public. For example, efforts to "stimulate" real activity by increasing the rate of growth of monetary aggregates will raise the rate of inflation anticipated by business firms and workers and result in an increase in nominal wages and prices. This result, of course, is just an elaboration of a central theme of classical monetary economics. In any case, it makes little sense in these circumstances to charge the Fed with active responsibility for the maintenance of high employment, even though high employment is obviously a desirable economic result. The most that can reasonably be expected of monetary policy in this area is the avoidance of monetary surprises that can cause painful and costly temporary variations in employment and output around their longer run trends.

The third reason I favor price stability as the principal objective for Fed policy cannot be stated and defended as rigorously as the two just noted, but I think it is an important reason nonetheless. Specifically, I think a convincing argument can be made that raising the priority of price stability would be consistent with the basic constitutional monetary powers granted to the government by the people.[2] The Constitution contains two monetary clauses: Article I, section 8, authorizes the federal government to coin money and regulate its value; Article I, section 10, forbids the states to coin money, issue bills of credit, or make anything other than gold and silver legal tender.

I do not believe there is any firm evidence that the framers of the Constitution intended the phrase ". . . regulate the value thereof . . ." in Article I, section 8, to require the federal government to vary the quantity of money with a view to fixing or otherwise stabilizing the

[2]The argument in this and the following paragraph was strongly influenced by the discussion of the monetary clauses of the Constitution in Hammond (1957, pp. 89–113).

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price level. It is more likely that the term "value" was intended to refer to the value in terms of specie of the money the government was authorized to coin, since there can be little doubt that the Founding Fathers intended to establish and to insure the perpetuation of a bimetallic commodity standard. It seems clear, however, that the two clauses were intended among other things to preclude the issue of fiat money by either the states or the federal government. It is true that only the states were expressly forbidden to issue fiat money. But it was clearly understood at the time the Constitution was written that the federal government was to have only the powers expressly granted to it, while the states were to retain all powers not expressly denied to them. This intention to preclude fiat money was almost certainly motivated by the disastrous experience with the continental currency and can be correctly viewed as an implied intention to create a monetary system in which price stability would be an inherent characteristic. I do not believe that a comparable argument can be mustered for any of the other objectives cited in the Fed's present legislative mandate.

Much has happened to our monetary institutions since 1789. The apparent intention of the framers to prevent the issue of fiat money by the government did not succeed, and we now have in essence a fiat money system. Making price stability the preeminent objective of monetary policy within the framework of the present system, however, would foster what appears to have been a preeminent implicit monetary objective of the Founding Fathers.[3]

Monetary Targeting as the Appropriate Policy Strategy

Now that I have summarized the case for restricting the Fed's macroeconomic mandate to price stability, let me just touch briefly on the choice of a strategy to achieve this goal. As I see it, the choice of a strategy is secondary to the adoption of price stability as the primary objective of policy, but it is nonetheless an important issue.

Any number of strategies for achieving price stability are possible. Some have suggested returning to the gold standard or adopting some

[3]It should be noted here that an attempt to incorporate an explicit price stabilization mandate in the original Federal Reserve Act was defeated. Several further attempts in the 1920s also failed. In this period, however, the United States was still officially on the gold standard. Much of the opposition to these proposals seems to have resulted from the belief that the adoption of an explicit price stability objective would have amounted to a questionable substitution of Federal Reserve discretion for the automatic features of the gold standard. See Fisher (1934, pp. 148–85).

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other commodity standard. Another possibility would be to adopt a rule under which the Fed would vary its policy instruments in some automatic or quasi-automatic way in reaction to deviations of the inflation rate, nominal GNP, or perhaps some other variable from a desired longer run path.

There is something to be said for each of these proposals in the light of recent experience, but each of them raises technical and in some cases political questions that would be difficult to resolve. With this in mind, it seems to me that the best approach at least for the time being would be to pursue price stability through a more determined application of the monetary targeting procedure we already have in place.

I am well aware of the questions that have been raised regarding the current procedure. On one side of the question, some economists believe that financial innovation and the deregulation of interest rates have reduced the predictability of the relationship between the growth of the monetary aggregates and the behavior of the price level and other economic variables. The disruptive initial impact of interest rate deregulation is now behind us, however, and it is not unreasonable to suppose, with most interest rate ceilings removed, that financial innovation will proceed at a slower and steadier pace in the years ahead. With this in mind, I think there is every reason to believe that a gradual reduction over time in the actual growth of the monetary aggregates would be sufficient to achieve price stability. My own feeling is that M1 would be the best aggregate for the Fed to focus on at present for a number of practical reasons. If conditions make it more practical to emphasize some other measure in the future, I would certainly support a change.

Other economists are skeptical of our current monetary targeting procedure for different reasons. In particular, these economists believe that certain features of the present procedure such as the use of single rather than multi-year targets and the allowance of so-called base drift significantly reduce the likelihood that the *actual* growth in the aggregates will in fact be reduced in the context of a basically discretionary approach to policy.[4] Such skepticism is not unreasonable in view of the experience with the present targeting procedure over the last decade. This simply underlines, however, my point that an unambiguous price stability mandate is essential to the success of *any* particular strategy for achieving it. Having said that, I do believe

[4]The term "base drift" refers to the present practice of using the *actual* rather than the target level of each monetary aggregate in the base year as the base for the target in the next year.

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that the adoption of a multi-year target band, along the lines of the suggestion Poole made several years ago, would be a strong incremental improvement in the present procedure.[5]

Summary and Conclusion

The main points of this paper can be summarized as follows. First, although the general economic picture is brighter than usual at present, we still face a number of longer run problems. In particular, despite the sustained period of lower inflation in recent years, there is no basis for concluding that price stability has been permanently achieved. Therefore, a reevaluation of the strategy of monetary policy at this time is appropriate. Second, a case can be made that the most constructive change that could be brought about at present would be to narrow the Fed's mandate in order to specify the objective of policy in an operationally meaningful way. The present mandate essentially forces the Fed to follow a discretionary approach that, among other things, undermines the Fed's independence. Third, if a decision to narrow the Fed's mandate is made, strong consideration should be given to elevating price stability to a preeminent position among the objectives of Fed policy because price stability is a more feasible objective than others that might be considered, and raising it to a predominant position would be consistent with the intent of the authors of the monetary clauses of the Constitution. Finally, while a number of specific monetary strategies for pursuing price stability are possible, a more determined application of the present strategy of targeting monetary aggregates along with some incremental technical changes in the present targeting procedure should be sufficient to achieve the objective over time.

In conclusion, I hope some of my comments will help to promote a public dialogue on the Fed's mandate. Beginning such a dialogue at present would seem to be especially promising. The credibility of monetary policy is unusually high now. An effort to specify our objective more clearly would build on this base and help extend our improved performance. In addition, as I suggested at the outset, it would probably be more fruitful to tackle some of the longer term issues I have raised now when the economy is performing relatively well rather than later when the Fed may be under intense political pressure to deal with some pressing immediate problem.

[5]See Poole (1976, pp. 247–59).

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A CONGRESSIONAL MANDATE FOR MONETARY POLICY

Robert L. Hetzel

Under the Constitution, Congress is responsible for determining the monetary regime. An attempt is made in this paper to explain, from the perspective of the self-interest of Congress, the current monetary regime. The key features of the institutional arrangements that define this regime are the institutional autonomy of the Federal Reserve System and the lack of a meaningful mandate from Congress specifying guidelines for the conduct of monetary policy. Also, an attempt is made to explain how these features of the current monetary regime shape the decision-making process of the Federal Reserve System. Finally, some comments are offered on the likelihood of Congress putting into place an alternative monetary regime by establishing a meaningful mandate to guide the conduct of monetary policy.

Congress

Although constitutionally monetary policy is the responsibility of Congress, the collegial, partisan character of Congress leaves it incapable of conducting monetary policy. The conduct of monetary policy requires that decisions, often of a technical nature, be made on a recurring basis. Congressional decision making, however, requires the formation of coalitions yielding a majority in order to effect actions and is too unwieldy for the conduct of monetary policy. Congress is, nevertheless, jealous of its constitutional prerogatives and unwilling to hand over monetary policy to the Executive Branch (apart from

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wartime). The solution to the problem of how to provide for the conduct of monetary policy is to turn monetary policy over to an institutionally autonomous Federal Reserve System.

This explanation can account for the institutional autonomy of the Fed, but is too general to account for other important features of the current monetary regime, especially the absence of a meaningful congressional mandate to guide the conduct of monetary policy. A complementary hypothesis, consistent with the existence of an institutionally autonomous Fed and yielding the implication that Congress will attempt to influence monetary policy, but will exercise such attempts outside of the framework of an explicit mandate, is the scapegoat hypothesis of Ed Kane. This hypothesis is described briefly below.

The Scapegoat Hypothesis

In light of the constitutional responsibility of Congress to determine the institutional arrangements within which monetary policy is formulated, there has been surprisingly little examination of congressional attitudes toward monetary policy. The discussion in this paper makes use of two important exceptions to this lacuna in the literature, the works of Ed Kane and John Woolley. Kane advances an explanation for current institutional arrangements from the perspective of congressional self-interest that he labels the scapegoat hypothesis. In this paper, the basic assumption of the scapegoat hypothesis is accepted, but the hypothesis is developed along lines that emphasize the importance to the political system of those aspects of monetary policy that pertain to the distribution of income. The following paragraph contains a review of Kane's hypothesis.

According to Kane (1975, 1980, 1982a, 1982b, 1984), current institutional arrangements allow Congress to control monetary policy through informal pressure while still allowing Congress to dissociate itself from the, at times, unpleasant consequences of monetary policy.

> Since participation in decision-making leaves one less free after the fact to criticize mistakes, it is natural for incumbent congressmen to regard forging a formal association with current Fed decisions as a potential source of keen embarrassment. Whenever the unsatisfactory performance of the national economy has been a key election issue, incumbent congressmen have found it convenient to be able to blame everything on the "misguided" policies of an "independent" Federal Reserve System.
>
> [Kane 1975, p. 41]

> I maintain that the Fed is given just enough autonomy to serve as a plausible scapegoat for elected politicians and that this limited

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> autonomy is bureaucratically desirable enough to make Fed officials work to preserve it.
>
> [Kane 1982, p. 193]

Kane has recently repackaged his ideas under the label "Fedbashing." This reexposition concentrates on explaining the apparent paradox of the coexistence of continual congressional criticism of monetary policy with persistent congressional failure to provide specific guidelines for the conduct of monetary policy:

> If a majority of both houses of Congress were to regard their institutional self-interest as better served by an alternative structure for monetary policy-making, they would be free (subject to the complication of having to override a Presidential veto) to enact this new structure. In particular, they could at any time choose either to supervise monetary policy much more closely or to surrender authority over monetary policy entirely to the Executive Branch. In repeatedly refusing to institute a clearly accountable structure (or unambiguous mandate) for monetary-policy decision making, Congress reveals its continuing preference for the Fedbashing process.
>
> [Kane 1984, p. 3]

Congressional Oversight of Monetary Policy

Any hypothesis intended to explain the institutional arrangements within which Congress has chosen to exercise its constitutional responsibility to oversee monetary policy must explain the characteristics of congressional behavior that Kane discusses. On the one hand, Congress continually criticizes monetary policy and attempts to influence it by threatening the institutional autonomy of the Fed in a variety of ways. On the other hand, Congress never issues any specific, meaningful guidelines for how monetary policy is to be conducted. This characteristic of congressional behavior is discussed in detail in Kane (1982a) and is documented in Woolley's (1984) study of the relationship between the congressional banking committees and Congress.

Congress regularly holds hearings at which it considers structural changes to limit the institutional autonomy of the Fed or to restrict the extent of Fed regulatory authority over banks. (See Table 7.1 in Woolley 1984, p. 140.) These changes have included, for example, requiring Fed submission to audits by the General Accounting Office (GAO), requiring Senate confirmation of appointments of regional Reserve Bank presidents, requiring changes in the representation on regional Reserve Bank boards of directors, and transferring the regulatory authority of the Fed over member banks and bank holding

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companies to another regulatory authority.[1] The seriousness with which these attacks on the institutional autonomy of the Fed are pursued depends upon the extent to which congressmen are feeling constituent pressure from groups desiring a lower level of interest rates. Also, the congressional oversight hearings on Federal Reserve policy, originally quarterly and now semiannual, offer congressmen the opportunity to criticize monetary policy and, especially, to attack the Fed for high rates of interest. Only rarely, however, does Congress attempt to formulate specific guidelines for the conduct of monetary policy.[2]

The skeletal idea of Kane's hypothesis is that the observed congressional preference for exerting pressure on the Fed outside of the framework of a meaningful, explicit mandate to guide the conduct of monetary policy derives from the dual desires by Congress to influence monetary policy and, at the same time, to dissociate itself from the unpopular consequences of monetary policy. This skeletal idea is retained here. It is fleshed out from the perspective of a Congress aware of its ability to influence voting behavior through the redistribution of income. Current institutional arrangements are viewed as reconciling the desire of Congress to use monetary policy to influence the behavior of interest rates for redistributive purposes with the inherent difficulties of using monetary policy in this fashion. These difficulties are the merely transitory ability of monetary policy to affect the real rate of interest and the inflation that accompanies attempts to lower real rates of interest through monetary policy.

[1]Bills introduced in the 1st session of the 99th Congress are typical. A bill by Rep. Phillip Crane would authorize the GAO to audit the Fed. A resolution offered by Sen. David Pryor calls for a representative of small business or agriculture on the Board of Governors "in recognition of the fact that the monetary policy decisions of the [Fed] . . . affect the lives of small businessmen and farmers." Small businesses "create most of the jobs, and are extremely productive, yet they are constantly hammered by increases in interest rates," according to Sen. Pryor (*Bondweek* 1985, p. 3).

[2]One example occurred in 1975 when Congress attempted to instruct the Fed to lower interest rates. After numerous legislative compromises, this attempt was transformed into HCR 133, which required the Fed to set ranges for monetary and credit aggregates. This incident is discussed later in the paper. Another example occurred in summer 1982 when Congress responded to the following common argument. A large deficit will cause high rates of interest that will, in turn, abort the economic recovery in progress. In order to avoid this outcome, numerous bills were introduced in Congress with the intention of forcing the Fed to maintain an expansionary monetary policy. Many required the Fed to set explicit targets for interest rates. Rep. Fauntroy's bill, The Balanced Full Growth Act of 1983, would have required the Fed to transmit twice annually to Congress a target for GNP growth. This congressional activity soon disappeared, in part, because of the decline in rates in the summer and fall of 1982, but primarily because Democrats decided that politically it was more advantageous to blame high interest rates on the Republican administration rather than on the Fed.

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Congress and Interest Rates

The concern of Congress for the redistributive aspects of monetary policy is concentrated in the attention it pays to interest rates. A review of the questions directed to the Fed chairman and of the commentary by congressmen in congressional oversight hearings renders inevitable the conclusion that for practically all members of Congress monetary policy is summarized by the behavior of interest rates.[3] The following quote illustrates how congressmen view monetary policy through the perspective of interest rates (*Nomination* 1984, p. 7):

> Sen. Sasser. Now the conduct of monetary policy is something that profoundly affects every citizen of this country. Interest rates determine the level and type of business investment and the shape of our economy for years to come. . . . Interest rates will determine whether new families will be able to buy their first home and whether American consumers can purchase new automobiles. . . . And interest rates will also determine the cost of servicing the national debt.

The following exchange also captures the prevalent attitude in Congress (*Conduct* 1982, p. 66):

> Rep. Paul. A lot of our discussion so far has been on interest rates, and there is justified reason for this, because when we go and talk to the people, everything they see and hear about is in terms of interest.
>
> Chairman Volcker. That is right.

Countless other examples could have been chosen.

The congressional innovation in 1975 of requiring the Fed to make public money supply targets did not represent any lessening of congressional concern over the behavior of interest rates. HCR 133 required monetary aggregate targeting, but emerged fundamentally as a consequence of congressional inability to agree upon a desirable interest rate target for the Fed in 1975. Woolley (1984, p. 147) comments:

> So, despite the innovation of attempting to give instructions to the Federal Reserve, and despite the monetarist tone, HCR 133 was toothless and compromised. It indicated some congressional concern about money supply growth rates, and it suggested that perhaps members were paying more attention to M1 than in the past. But

[3]Congressional attention generally focuses on nominal rates of interest, rather than on real rates. Perhaps the focus on nominal rates reflects the lack of observations on real rates. A focus on nominal rates also facilitates a masking of political pressures to lower real rates when anticipated inflation is rising.

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> even in this respect, the legislation was flawed. HCR 133 explicitly permitted the Federal Reserve System to deviate from announced target ranges. Moreover, neither HCR 133 nor the process of debate preceding it produced a clear signal from Congress that it cared about monetary aggregates more than interest rates. The compromise language of HCR 133 explicitly incorporated references to interest rates. Reuss referred repeatedly to interest rates in his presentation of the compromise legislation to the House, assuring members that their earlier "language and intent" had been retained. And, of course, earlier House language and debate referred almost exclusively to interest rates. . . . Mainly, HCR 133 required the appearance of the Federal Reserve chairman at regularly scheduled hearings. This was an *opportunity* for fruitful exchange, nothing more.

Congressionally mandated targets for the money supply lack the substance necessary to serve as a benchmark for assessing the performance of the Fed. The Federal Reserve Act permits multiple targets for money and credit, permits the individual targets to be specified as a range of unspecified magnitude, and permits base drift in these targets from year to year. The Federal Reserve Act also does not require that the targets for the monetary and credit aggregates be hit. It states, "Nothing in this Act shall be interpreted to require that the objectives and plans with respect to the ranges of growth or diminution of the monetary and credit aggregates disclosed in the reports submitted under this section be achieved if the Board of Governors and the Federal Open Market Committee determine that they cannot or should not be achieved because of changing conditions" (Board 1984, p. 6). In short, nothing in the Federal Reserve Act effectively counterbalances the signals from Congress to the Fed about the importance Congress assigns to the behavior of interest rates.

Woolley also reviewed the reports on monetary policy issued by congressional committees after 1975 and finds no evidence of widespread congressional sentiment for money supply targeting. He argues that the monetarist tone of the House Banking Committee in the late 1970s "had a highly personal cause, the particular committee chairman and his staff. When the chairman and staff changed in the early 1980s, so did the content of the reports." He notes that after 1981, the reports of the Senate Banking Committee became more monetarist in tone, but that the reports of the Joint Economic Committee were never monetarist in tone. He concludes, "No matter how monetarist the Banking Committees may have become, other influential committees have been giving the Federal Reserve sharply conflicting instructions" (Woolley 1984, p. 150). Congressmen are concerned

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about the behavior of interest rates. The specific contexts in which this concern is expressed indicates that concern over the behavior of interest rates is motivated to a significant degree by the consequences of changes in interest rates for the distribution of income.

Congress and the Redistribution Motive

In considering congressional attitudes toward monetary policy, it is useful to classify means of redistributing income as politically efficient and politically inefficient. Tariffs are considered here as an example of a politically efficient means of redistributing income. They concentrate high per-capita, visible benefits on a small, homogeneous group, while spreading low-per capita, hidden costs among a large, heterogeneous group. Over time, tariffs retain a consistent vote-gathering capability, so that to some degree they are always imposed, rather than being imposed only intermittently. Congressional responsibility for tariffs is made directly apparent to those who benefit from them.

Monetary policy, like tariffs, offers opportunities for redistributing income through its (transitory) effect on the real rate of interest.[4] The groups that Congress traditionally has tried to appeal to through advocacy of "low" rates of interest are the construction and home building industry, farmers, small businessmen, and the unemployed. The cost of achieving politically desirable "low" real rates of interest is inflation. "Low" rates of interest are produced by unanticipated money creation, but money creation does not increase the availability of real resources. It leads to inflation. The political benefits that derive from the redistributive aspects of monetary policy are transitory. They cannot be sustained the way the political benefits of a tariff can be sustained because a systematic monetary policy that generates lower real rates of interest is impossible. Also, the cost, inflation, is not hidden. Monetary policy is, in contrast to tariffs, a politically inefficient means of redistributing income.

[4]Economists may object to the assumption that Congress to a significant degree views monetary policy from the perspective of income redistribution, rather than macroeconomic stabilization, because monetary policy is an economically inefficient means of redistributing income. Economic efficiency is not a criterion of Congress, however. Consider agricultural programs as a way of redistributing income. Acreage restrictions, for example, promoted a wasteful employment of resources. In particular, they caused excessive amounts of inputs (seed, fertilizer, farm machinery, and labor) to be applied to land not included in the acreage restrictions. Farmers and consumers would have been better off if Congress had simply sent farmers a check in the mail. This latter, economically efficient means of redistributing income, however, was politically inefficient. In this case, it would have rendered visible costs that remained hidden under the scheme of acreage allotments.

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The terminology "politically inefficient" should not be taken to imply that the redistributive effects of monetary policy are unimportant economically. The redistributive effects associated with monetary policy are significant, and these potential effects give rise to genuine constituent pressure on congressmen. Although the ability of monetary policy to redistribute income is transitory, the redistribution is nonetheless significant because it is not necessarily corrected. For example, an unanticipated inflationary shock that lowers unemployment transitorily can transfer real benefits to newly hired workers even if the inflation generates political pressures for a deflationary policy. When a subsequent deflationary shock occurs that increases unemployment, the previous group of newly hired workers will probably have acquired sufficient seniority to avoid being laid off and a different group of workers, in particular new entrants to the labor force, will bear the cost of unemployment. The ability of these transitory income redistributions to influence voting behavior is real and the political system must deal with the associated political pressure.

The terminology "politically inefficient" refers to the fact that the potential political benefits offered by monetary policy cannot be sustained. It also refers to the fact that congressmen cannot take credit for "low" rates of interest in a direct way because to do so would associate them with the costs of these policies. Public ignorance about the relationships between interest rates, the money supply, and inflation undoubtedly encourages political pressures for a "low" rate policy. An attempt to legislate explicitly such a monetary policy, and thus to take political credit for it directly, however, would in time render evident these relationships to the public and would render evident the costs of a "low" rate policy—inflation and perhaps credit rationing.

The distributive consequences of monetary policy give rise to pressures on the political system. The politically inefficient character of monetary policy as a means of redistributing income determines the way in which Congress accommodates these pressures. Current institutional arrangements give congressmen the freedom to advocate "low" rates of interest, or perhaps more aptly to criticize "high" rates of interest, without, at the same time, assuming responsibility for the inflation rate (or even jeopardizing their ability to criticize high inflation rates). As Kane argues, congressmen want the ability to influence monetary policy without assuming responsibility for it. These objectives are achieved by making the Fed institutionally autonomous, but by leaving that institutional autonomy subject to revocation so that the Fed remains susceptible to congressional pressures. By failing to specify a mandate to guide the conduct of mon-

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etary policy, Congress leaves itself free to pressure the Fed for "low" rates of interest, without associating itself with the unpopular consequences of such a policy.[5]

It can be argued that there are simpler explanations than the one offered here for why Congress does not issue an explicit mandate to guide the conduct of monetary policy (while leaving the actual conduct of monetary policy to the Fed). It could be argued that congressmen are too unsophisticated to formulate a mandate for monetary policy. Monetary policy, however, is no more technical than many other issues with which congressmen deal, for example, pollution of the environment or disarmament. The congressional banking committees could assemble staffs with sufficient expertise to draft a meaningful mandate for monetary policy. Simply because congressmen may be ignorant of monetary theory does not mean that they are incapable of appreciating the immense importance of monetary policy or that they are incapable of calling upon the expertise that would enable them to provide guidelines for the conduct of monetary policy.

It could also be observed that Congress does not provide a meaningful mandate to guide the conduct of monetary policy because there is no consensus in society over the appropriate goals of monetary policy. This observation, however, only leads to a restatement of the hypothesis offered here for the kind of monetary regime put in place by Congress. In considering the way in which the political system deals with the lack of a consensus over monetary policy, it is important to recognize the distributional aspects, as well as the macroeconomic aspects, of monetary policy. Where social consensus breaks down is not just over the macroeconomic goals of monetary policy, but over the way in which monetary policy should respond to distributional considerations. The lack of a specific mandate to guide the conduct of monetary policy allows congressmen to be responsive to constituent pressures from particular groups without accepting responsibility for the consequences, consequences inimical to the interests of different groups. Formulation of a meaningful mandate to guide policy is rendered difficult because of the difficulty in reach-

[5]The collegial character of Congress allows it this latitude. There is an analogy between fiscal and monetary policy. Each congressman takes credit for government expenditures in his district, but no congressman takes responsibility for the overall level of government spending or for the deficit. Similarly, congressmen can take credit for particular actions to influence monetary policy without assuming responsibility for the overall consequences of monetary policy. In this respect, there is a difference between the Executive Branch and Congress. The president, as opposed to individual congressmen, is likely to be blamed for undesirable consequences of monetary policy. The Executive Branch has little to gain from scapegoating, so that it can be conjectured that it would like to have direct control over monetary policy.

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ing consensus over policies that enhance the welfare of one group to the detriment of another.[6]

The relation between the difficulty of the political system in establishing a consensus in matters with significant distributional consequences and the failure of Congress to establish a mandate for monetary policy was discussed above. This discussion can be illustrated with reference to the interplay between monetary and fiscal policy in the 1960s and 1970s. Over the last two decades in the United States, there has been no satisfactory procedure for determining the share of national income allocated to the public sector. Expenditures have been decided upon for particular programs without a social consensus that the resulting total expenditure constituted an acceptable fraction of national income. In the 1960s and 1970s, inflation allowed the political system to resolve the conflict over the share of income to allocate to the public sector, without directly confronting this lack of consensus, by increasing revenue without the need for Congress to vote explicitly for new taxes. Inflation increased revenue in two ways in addition to the seigniorage of a tax on cash balances. First, unanticipated inflation provided for an effective increase in revenue through a decrease in the market value of outstanding government debt. Second, inflation increased government revenue because of the specification of the tax code in nominal, rather than real, terms. Because of the implications of monetary policy for government revenue, the absence of a social consensus over the fraction of output to assign to the public sector inhibits Congress from formulating a meaningful mandate for monetary policy.

It is important to realize that the hypothesis advanced here to explain congressional behavior does not require that congressmen understand the analytical relationship between interest rates and the inflation rate. Congressmen do not have to believe that inflation is a monetary phenomenon in order to be constrained by the fact that fiat money creation cannot substitute for real resource creation. Congressmen do not refrain from setting interest rates directly in the political process because they believe in economic theories that tell them they cannot act in this manner. They have in fact at times attempted to set rates as part of the political process but, as a pragmatic matter, have backed off when the attempt failed. Interest rate pegging was abandoned in 1951 not because of theoretical consid-

[6]In general, Congress is not explicit about the objectives of programs whose primary motivation is distributional. Such explicitness would only highlight the lack of social consensus over these programs. Explicit statement of redistributive goals also facilitates identification of the costs of such programs and reduces the costs of organizing political opposition.

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erations, but rather because inflation caused the pegging scheme to break down. Congressmen feel the need to pass on constituent pressure to keep rates low, at least during those times when politically well-organized sectors of the economy are adversely affected by a rise in rates. As a pragmatic matter, they find that if they try to set rates directly they get blamed for inflation. Letting an autonomous Fed set rates, but leaving the Fed susceptible to pressure when constituent heat is turned up, while not accepting responsibility for the consequences of that pressure, represents a pragmatic solution to a political problem.

It has been contended above that congressional attitudes toward monetary policy are shaped by congressional willingness to use monetary policy to influence the distribution of income. It could, alternatively, be argued that Congress views monetary policy primarily in the way it is viewed by much of the economics profession, namely, as a useful tool for the stabilization of the economy. This latter contention, however, suggests a different behavior on the part of Congress than has actually been observed. It suggests that Congress should have required the Fed to adopt procedures for formulating monetary policy that are rational from the point of view of effecting macroeconomic stabilization. Congress should have required the Fed to make explicit its macroeconomic objectives through numerical specification of targets. Also, it should have required the Fed to make explicit its procedures for deriving its intermediate and operating targets from those macroeconomic objectives. (Economists disagree over the objectives of monetary policy. All agree, however, that if monetary policy is activist, which it is, then procedures for formulating policy should incorporate these features.) Oversight of monetary policy would involve not only a discussion of the appropriateness of the targets set by the Fed for macroeconomic objectives, but also a discussion of whether the settings chosen by the Fed for its intermediate and operating targets would in fact achieve the macroeconomic objectives. Finally, the congressional banking committees would have built a staff of economists with an expertise that would enable them to assess the efficacy of monetary policy in a rigorous manner.[7]

The Federal Reserve

An approach to the political economy of monetary policy that seeks the origin of particular policy actions in the political exigencies of

[7]It could be argued that the recent recession has caused an increase in the extent to which Congress views monetary policy as an instrument for preventing recessions in

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the day too quickly ends up as a caricature of policy. The approach followed here is to seek to explain the general framework for Fed decision making as determined by the need for the Federal Reserve to solve particular problems of how to implement policy in the context of constraints imposed by the political system. The most general formulation of the problem that the Federal Reserve must solve is how to formulate monetary policy in order to achieve macroeconomic objectives, given the importance the political system assigns to the distributional consequences of monetary policy. In particular, the Federal Reserve must design procedures for formulating policy that allow it to vary interest rates in order to achieve macroeconomic objectives within a political system sensitive to the distributional implications of variations in interest rates.

The Congressional Shadow

Congressional willingness to pressure the Fed to use monetary policy in a way that produces a politically desirable redistribution of income does not imply a consistently inflationary monetary policy. By failing to specify a mandate to guide the conduct of monetary policy, Congress becomes only one of many influences on monetary policy. The Fed itself must be concerned with erosion of public support for its autonomy caused by inflation. It is argued below, however, that the Fed's need to find ways of coping with congressional pressure on monetary policy has been a major determinant of the way in which policies are formulated. Constitutionally, the Fed owes its existence to Congress. This fact endows Congress with a pervasive influence over monetary policy that extends well beyond any intermittent ability to influence particular actions of the Fed.

The monetary policymaker is motivated by a sense of civic responsibility, more specifically, by a belief that he can formulate a monetary policy that will promote macroeconomic objectives generally

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that, during the recession, Congress became acutely aware of the extent to which recessions reduce government revenue. This awareness could have caused Congress to attach increased importance to having available the use of an expansionary monetary policy to counteract recessions. Evidence in support of this argument would be the numerous bills introduced in 1982 requiring the Fed to set explicit targets for macroeconomic objectives. (See, for example, the bills introduced by Congressmen Conyers, Cranston, Dingell, Garn, Fauntroy, Patman, Moynihan, Quayle, and St. Germain.) Examination of these bills, however, reveals the standard congressional language berating the Fed for causing "high" interest rates and blaming a wide variety of ills on these "high" rates. When it no longer seemed advantageous to blame the Fed for "high" rates, congressional interest in this legislation disappeared. This experience does not indicate a sustainable congressional interest in making monetary policy a useful tool for economic stabilization.

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considered desirable by society. From the perspective of the monetary policymaker, the ability to pursue such a policy requires an institutionally autonomous Fed; the authority to formulate policy must reside at the Fed, not somewhere else. Congressional concerns, therefore, exercise a pervasive influence on the way in which monetary policy is formulated. Monetary policy emerges as the pursuit of macroeconomic objectives within a framework that the Fed views as permitting it to retain its institutional autonomy. Several of the salient characteristics of this framework are summarized below.

In pursuing monetary policy in a way that will preserve its independence, the Fed must be cognizant of the multiplicity of groups that vie to influence monetary policy. These groups generally possess different primary objectives. To prevent the formation of a coalition capable of threatening its institutional autonomy, therefore, the Federal Reserve must at most times pursue a policy of targeting multiple objectives. In this way, the Fed will not appear insensitive to the concerns of any major political group. "We always have to balance multiple objectives. The need to provide sufficient money and credit to sustain the recovery is one; keeping inflation under control is another" (Martin 1984, p. 37).[8]

The lack of a specific mandate from Congress to the Fed to guide the conduct of monetary policy leaves unclear what the Fed must do in order to preserve its institutional autonomy. This lack of a mandate produces a policy by the Fed that is characterized by a lack of precommitment (Hetzel 1984b). It is not in the self-interest of the Fed to make explicit its objectives for policy when there is a probability ex post that those objectives could conflict with the objectives the Fed must pursue in order to maintain its institutional autonomy. If a conflict were to arise between explicit objectives and the objectives that could be pursued compatibly with preservation of its institutional autonomy, then the Fed would suffer public embarrassment by appearing political. From the perspective of the Fed, a policy characterized by a lack of precommitment allows the pursuit of macroeconomic objectives generally considered desirable, in a framework that preserves for it the ability to counter threats to its institutional autonomy. The priorities among macroeconomic objectives can be altered if necessary to defuse the formation of a coalition capable of threatening Fed autonomy.

[8]This explanation for the multiplicity of objectives of monetary policy need not rule out other explanations. In particular, in the intellectual environment within which policy has been formulated over the recent past, it has been assumed that monetary policy should pursue multiple objectives. The relevant issue was presumed to be how to trade off among multiple objectives.

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Similarly, a policy of nonprecommitment endows the Fed with the ability to modify, when necessary, the extent to which it varies interest rates to achieve macroeconomic objectives in light of congressional concern for the redistributive consequences of changes in interest rates. Again, the Fed retains the ability to defuse periodic congressional threats to its institutional autonomy. From the perspective of the Fed, nonprecommitment allows it to assuage congressional hostility that arises from the heat of the moment, but that possesses the potential to limit permanently its autonomy.

An unconstrained procedure for formulating policy need not (and in the author's opinion does not) make particular policies regularly susceptible to political pressures. The Fed keeps in mind the need to preserve public support for its institutional autonomy. It must be concerned about the impact of the rate of inflation on the credibility of its argument that an autonomous Fed is necessary to ensure a low rate of inflation. It must also be concerned about the credibility of its argument that an autonomous Fed is necessary to avoid a politically partisan monetary policy. The assumption that particular policies are only infrequently affected by a desire on the part of the Fed to defuse situations that could potentially result in a limitation of its autonomy, however, still allows the absence of precommitment to exercise a far-reaching influence on the character of monetary policy. (See Barro [1983] for one elaboration of these consequences.)

The concern of Congress for the distributional consequences of changes in interest rates exercises an all-pervasive influence on the way in which policy is formulated. It is argued in Hetzel (1985b) that this influence is a major reason for the persistence of the "lean against the wind" characteristic of monetary policy. This phrase was intended by the Fed to capture its perception of monetary policy as countercyclical. The phrase "lean against the wind," however, is more aptly used to describe the persistent characteristic of policy in which money market rates (since 1970 the federal funds rate) are set in light of the contemporaneous state of the economy. (See Hetzel [1984a] for evidence that this characteristic of policy continued into the 1980s.) A policy of "lean against the wind" allows the Fed, from its perspective, to vary rates in order to achieve macroeconomic objectives. At the same time, by varying the level of rates from the prevailing level in response to the contemporaneous behavior of the economy, the Fed builds in a rationale for increases in rates, in terms of the state of the economy, that can be used as a defense against a Congress concerned about the distributional consequences of increases in rates. If Congress attacks the Fed for increasing rates, the Fed can always seek

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public support with a defense readily explainable by reference to the existing state of the economy.

Money Supply Targeting

Congressional concern for the distributive consequences of the behavior of interest rates precludes any sustained attempt by the Fed to implement monetary policy through money supply targeting. Given the concern of Congress for interest rates, the Fed would endanger its ability to defend its autonomy if it adopted procedures whereby rates are regularly determined as a by-product of achieving a money supply target. If it adopted such procedures, situations would arise over time where the Fed would have limited its ability to control rates in a way that would allow it to defuse congressional action threatening its independence. More generally, within the Fed, operationally significant targets for the money supply are associated with precommitment and are, therefore, unacceptable, apart from very unusual situations (Hetzel 1984a).

Particularly since October 1979, the Fed has adopted the language of monetary control for use in communicating to Congress and to the public. The language of monetary control is useful as a means of communicating to Congress the periodic need to raise interest rates.[9] Discussion of policy in terms of interest rates can convey the wrong message to a Congress predisposed to confuse the ability of the Fed to control rates to achieve macroeconomic objectives with the ability of the Fed to control rates to achieve distributive objectives. Finally, discussion of policy in terms of interest rates can convey at times the undesired message to the public that the Fed is responsible for "high" rates of interest. The Fed associates "high" rates of interest with a lack of fiscal discipline on the part of Congress, while Congress associates "high" rates of interest with tight monetary policies of the Fed.

Money supply "targeting" within the Fed is, in general, most accurately thought of as the use of the money supply as an informational variable. (For a discussion of money supply targeting within the Fed, see Hetzel [1981, 1982, 1984a, and 1984b].) When the Fed believes that the behavior of the money supply is reflecting the behavior of the economy, the behavior of money is employed as one of the informational variables that determines movements of the

[9]Before adoption of the language of monetary control, the Fed often found it convenient to describe its objectives in terms of interest rate smoothing in order to avoid advertising to the political system an ability to control the level of interest rates. To the best of the author's knowledge, there never has been any serious discussion by the Fed of a strategy for smoothing interest rates.

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funds rate away from its prevailing value. (Incoming statistics on the behavior of the economy remain the more important determinant of the funds rate, however.) In this way, deviations of the money supply from its intra-yearly "target" are one determinant of changes in the funds rate, although the funds rate is not set in a systematic way to achieve the money supply "target."[10] (Less confusion would arise if the term "benchmark" were employed in place of the term "target.") The view of money as one of many variables offering information about the economy explains in part why the Fed retains multiple definitions of the money supply. A multiplicity of definitions increases the chance that at any one time the Fed will have available to it a definition of money whose behavior captures its perception of the behavior of the economy. Also, in this way, money supply targeting can be made compatible with the "lean against the wind" characteristic of policy described above.

From the perspective of the Fed, desirable behavior of the money supply emerges as a consequence of desirable behavior of the economy, rather than directly as a consequence of achieving money supply targets. Consider the attitude of the Fed toward monetary control during economic recovery. The Fed attempts to keep the funds rate high enough to preclude a resurgence of inflation, yet low enough to sustain economic recovery. The funds rate is moved from its prevailing value to achieve these dual objectives through a process of ongoing judgmental variation. Success in keeping the funds rate high enough to restrain inflation implies only moderate increases in the demand for money, which depends upon nominal income and the price level. Because, in the Fed view, the money supply is demand determined with a funds rate target, moderate growth in money will emerge as a by-product of success in achieving moderate growth in nominal GNP and prices, rather than as a direct consequence of a commitment to hit a money supply target with a low value.

The Fed and Release of Information

In discussing the issue of the information that the Fed makes available publicly, it is useful to consider separately issues pertaining to the formulation of policy and the implementation of policy. With respect to the formulation of policy, debates over the extent of public disclosure of information are generally debates over issues of more

[10]The interval of time from October 1979 to July 1982 is interesting because of the existence of subintervals when the funds rate was being varied in an attempt to achieve an intra-yearly target for M1. It is, however, misleading to characterize this period as one in which the Fed was uniformly trying to achieve a money supply target (Hetzel 1984a).

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fundamental importance. The Fed avoids numerical specification of ultimate objectives for monetary policy. It employs instead qualitative objectives such as "low" unemployment and "low" inflation. Through a process of judgmental decision making based upon ongoing observation of the contemporaneous state of the economy, the Federal Open Market Committee (FOMC) develops a consensus over the priorities to assign to achievement of its various qualitative objectives. In light of this consensus, the funds rate is moved from its prevailing value. (Since the early 1970s, when the FOMC has felt that the behavior of the monetary aggregates was reflecting the behavior of the economy, the behavior of these aggregates also influenced the decision to move the funds rate away from its prevailing value.) The motivation for procedures characterized by the pursuit of qualitative objectives and by judgmental decision making derives from the desire of the Fed to avoid precommitment.

In contrast, procedures characterized by the specification of explicit numerical objectives of policy and characterized by model-based derivation of intermediate and operating variables from the fundamental objectives of policy move the policy process in the direction of precommitment. Publicly announced, numerically specified objectives would constrain the ability of the Fed to alter its objectives in an ongoing fashion. Any alteration of such objectives would require the specification of new objectives, and this action would inevitably serve to draw criticism from affected groups. Also, ongoing respecification of objectives would suggest a lack of consistency in policy. Debate over the extent of Fed disclosure of information in the formulation of policy is usually a more fundamental debate over the appropriate procedure for formulating policy. In particular, it is a debate over the appropriateness of current procedures as opposed to procedures that entail at least some degree of precommitment to publicly announced, numerically specified objectives of policy.[11]

The Fed offers practically no information to the public on the implementation of policy, for example, on the values of the operating variables targeted by the New York Open-Market Desk. This

[11]The Fed perceives itself as open because it announces publicly its intentions with respect to its qualitatively formulated objectives. The best example occurs when the Fed desires to make a reduction in inflation its primary objective. In this task, the Fed feels constrained by the price-setting and especially wage-setting behavior of the private sector. The chairman of the Fed goes to great lengths at such times to announce publicly that the Fed will not accommodate price- and wage-setting behavior that anticipates continued inflation. The publicity surrounding Fed attempts to influence the price-setting behavior of the private sector causes the Fed to perceive itself as open with respect to its objectives.

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behavior is one aspect of the way the Fed attempts to solve the general problem of how to vary interest rates to achieve macroeconomic objectives in a political system that is sensitive to the distributional consequences of changes (increases) in rates. In this respect, current procedures represent the culmination of an evolutionary process. In unusual situations of "crisis" when the Fed wants to have an impact on the expectations of the public, it will associate particular actions of its own with a change in rates. Specifically, the Fed makes use of the announcement effect of a change in the discount rate. More generally, however, the Fed avoids associating its actions with changes in market rates. For example, changes in the discount rate are justified by the desirability of bringing the discount rate into line with market rates. More commonly, without public announcement, the operating variable targeted by the Desk is altered in a way that causes a change in the funds rate. Over time, the market distinguishes between this policy-induced change in the funds rate and the random daily movements in the funds rate, and money-market rates change accordingly. In this way, the Fed avoids newspaper headlines such as "Fed Raises Rates." Such media characterization would encourage criticism of the Fed for engineering "high" interest rates.

Also, a significant increase in rates effected at one time would serve as a lightning rod for public criticism. The same increase effected gradually over a period of time is less likely to attract criticism. If the market is aware of Fed intentions to increase the level of rates significantly, however, money market rates will respond immediately and fully. The Fed loses its ability to increase rates gradually. (The Fed's own rationale for the desirability of withholding information pertinent to the implementation of policy is detailed in Goodfriend [1984]. On this general issue, see also Dotsey [1984].)

A Congressional Mandate

The political feasibility of establishing a congressional mandate to guide the conduct of monetary policy is considered in the remainder of the paper. The current mandate from Congress to the Fed is too general to possess any significance. Section 2A of the Federal Reserve Act requires the Fed "to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates." The "ranges of growth or diminution of the monetary and credit aggregates" are to be set "taking account of past and prospective developments in employment, unemployment, production, investment, real income, productivity, international trade and payments, and prices" (Board 1984, p. 6). An example of a meaningful mandate

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would be one in which the above language is replaced with language making stabilization of the price level the sole objective of monetary policy.[12] Whether Congress would formulate and then effectively oversee implementation of such a mandate depends upon the strength of constituent pressure to use monetary policy as a vehicle for affecting the distribution of income and the political rewards for using monetary policy in that fashion. As long as distributional concerns are of paramount importance, there is no possibility of a consensus over the principles that should guide the conduct of monetary policy and no possibility that Congress would establish a mandate to guide the conduct of monetary policy.

Milton Friedman (1977, p. 18) has offered the generalization that government programs change drastically between academic conception and implementation as they pass through the political system:

> All of us . . . have tended to follow the attitude: Well, now, what we need to do is to figure out the right thing. If only we can tell them what the right thing to do is, then there's no reason why able, well-meaning, well-intentioned people should not carry out those ideas. But then we discover, over and over again, that well-intentioned, able people have passed laws, or have established institutions—and lo and behold, they don't work the way able, well-intentioned people expected or believed they would work. And it isn't an accident that that happens. It happens for very systematic, explicit reasons.

[12]The discussion in the section "The Federal Reserve" suggests that the issue of whether to establish a mandate to guide the conduct of monetary policy should not be viewed as one of imposing constraints on the formulation of policy where no constraints are currently imposed. The formulation of monetary policy is constrained by the political environment in which it operates. An explicit mandate would replace the present, poorly understood constraints with clearly understood constraints (see Hetzel [1985c].) In this respect, the neo-Keynesian paradigm used to defend a discretionary monetary policy is misleading. According to this paradigm, the private sector enters into arrangements that restrict its subsequent ability to respond to macroeconomic shocks. For example, it contracts in nominal terms. In contrast, the monetary authority retains an ability to cope with unanticipated macroeconomic shocks because it does not precommit its future behavior. This "flexibility" of the government relative to the private sector is the basis of proposals for a discretionary, activist monetary policy to stabilize the economy.

According to the view advanced in this paper, this paradigm is misleading because it ignores the political constraints on discretionary monetary policy. (Brunner [1981] expresses this idea.) In terms of their effect on voting behavior, the distributive consequences of monetary policy are considered by the political system to be as important as the macroeconomic consequences. As a result, much of the apparent "flexibility" of the monetary authority to effect a stabilization policy disappears, and the apparent comparative advantage of the government relative to the private sector in dealing with macroeconomic disturbances diminishes.

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Friedman's observation is consistent with the contention of this paper that congressional attitudes toward monetary policy are shaped by distributional considerations. Academic proponents of stabilization policies consider only the macroeconomic aspects of the policies they espouse. The importance to the political system of the distributional consequences of these policies, however, shapes their implementation in ways that their original proponents do not envisage. The transformation of policies between academic conception and political implementation is obvious in the case of proposals to use wage and price controls in order to reduce the costs of moving to a lower rate of inflation. Anyone who reads the congressional hearings from the 1940s, 1950s, and 1970s on price controls will realize that the distributional consequences of these controls were what preoccupied politicians. The application of wage and price controls reflects this reality and, consequently, is never as originally envisaged by their academic proponents. In this respect, monetary policy does not differ from wage and price controls.

If Congress believes that it is politically advantageous to retain the ability to influence monetary policy to affect the distribution of income through influencing the behavior of interest rates, then its self-interest will lead it to shun a clear mandate for monetary policy. Similarly, if Congress desires to retain the ability to employ an inflation tax, it will be unreceptive to the idea of a meaningful mandate.

It is, however, not inevitable that Congress will be unreceptive to establishment of a mandate to guide the conduct of monetary policy. It has been argued above that Congress is unlikely to establish such a mandate as long as its attitude toward monetary policy is influenced by redistributive concerns. Over significant periods in the past, however, Congress has been unwilling to use monetary policy as a vehicle for the redistribution of income. The presidential campaign of William Jennings Bryan was built upon the premise that government should control the price level to influence the distribution of income between creditor and debtor classes. Bryan's defeat ensured the existence of the gold standard until the start of World War I. Majority political opinion favored the gold standard because under it the price level was not under the control of the government. Under the gold standard, the government was insulated from political pressure to manipulate the price level to redistribute income. Two factors are discussed below that influence the extent to which Congress is likely to view monetary policy from the perspective of the distribution of income.

The first factor is the ability of politicians to assemble a political constituency that will benefit from the redistribution of income. Home

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building and construction are examples of sectors of the economy that have comprised such a constituency in the past. The political influence of these users of credit relative to suppliers of credit has diminished, however. The introduction in the late 1970s and early 1980s of financial assets available in small denominations that pay a market-determined rate of return has created a broad class of politically conscious savers. Also, the increase in the number of older voters has enhanced the political influence of savers. It has become less advantageous politically for a congressman to campaign on a platform of "low" interest rates.

The second factor is the difficulty individual congressmen experience in associating themselves with the income transfers effected through monetary policy. It was argued above that monetary policy is a politically inefficient means of redistributing income in part because its costs, inflation, are not hidden. Because congressmen must influence monetary policy indirectly in order to avoid association with these costs, it is difficult for individual congressmen to reap political benefits from exerting pressure for "low" interest rates. This difficulty accounts for the low prestige of the congressional banking committees. Commenting on this lack of prestige, *The Washington Post* (22 April 1984) wrote of the author's senator: "His committee assignments—Banking, Housing, and Urban Development and Commerce, Science and Transportation—are among the least visible in Congress." Woolley's (1984, p. 134) scholarly examination leads him to the same conclusion:

> The most important characteristic of the Banking Committees seems to be the relatively modest quantity of highly selective pork barrel material benefits they control and, probably as a consequence, their generally low prestige and power. Powerful committees such as Appropriations, House Ways and Means, and Senate Finance all have substantial ability to distribute benefits and influence policy. The Banking Committees, with their relatively meager capacity to bestow benefits widely, have been less attractive assignments. Lower power and prestige are associated with high rates of turnover because members attempt to move to more desirable posts. Most members seem to have little interest in the substantive policy issues before the committees.

"In the House, almost everybody on the Banking Committee participates on the pork barrel subcommittee on housing—which has a big staff—and very few participate on subcommittees having to do with monetary policy—which get very little staff" (Woolley, personal communication, 1985).

In sum, with respect to the question of whether Congress is likely to establish a meaningful mandate to guide the conduct of monetary

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policy, there are, on the one hand, reasons for believing that Congress will not be amenable to establishment of such a mandate. Monetary policy, if not anticipated by the public, does influence real variables. It is tempting politically to seek votes from groups that benefit from the associated distributive consequences of the real effects of monetary policy. In addition, Congress can be expected to resist foreclosing the possible future use of inflation as a means of raising revenue that does not require explicit action to raise tax rates. On the other hand, it is more difficult than formerly to put together a coalition that can benefit from "easy money" without arousing opposition. Finally, monetary policy is a politically inefficient way to redistribute income because of the difficulty any one congressman has in identifying himself with the "benefits." It is unlikely, therefore, that Congress will insulate monetary policy from the influence of the political system by establishing a mandate to guide the conduct of monetary policy, but it is still a possibility.

Conclusion

A mandate to guide the conduct of monetary policy would clarify the responsibilities of the Fed. As long as the congressional perspective on monetary policy is heavily influenced by those aspects of monetary policy that pertain to the distribution of income, however, Congress will remain unwilling to establish such a mandate. There is little likelihood of establishing a political consensus on matters that concern the redistribution of income from one group to another. Congress may well desire to retain the ability to influence the behavior of interest rates without accepting responsibility for "high" rates of interest or inflation. It may also desire to retain the ability to use monetary policy as a means of raising revenue. In these cases, Congress will continue to fail to furnish the Fed with any clear guideline for what the Fed must do in order to preserve its institutional autonomy. Monetary policy, however, is a politically inefficient means of redistributing income. This consideration suggests that a mandate requiring the Fed to stabilize the price level is, if not inevitable, at least a politically viable possibility.

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PRICE-LEVEL STABILITY AS THE GOAL OF MONETARY REFORM

Leland B. Yeager

Robert Hetzel considers whether it is politically feasible to require the Federal Reserve to aim at stabilizing the price level. It is not entirely clear to me whether he would allow the Federal Reserve to target its open-market operations on this goal directly or would require it, instead, to make some monetary aggregate grow at the steady rate thought conducive to price stability. Anyway, he seems to take the economic desirability of a stable price level for granted.

I would like to see earlier economic assessments of the price-level rule taken up again and extended. (In his paper and especially in a companion paper, January 1985, Hetzel does quote from congressional discussions of the 1920s.) Nowadays, the doctrine of rational expectations discredits an activist policy of trying to manipulate real macroeconomic variables. In that way it favors the more modest policy of simply avoiding the monetary disturbances that movements of the price level would symptomatize. Renewed interest in the "Austrian" school directs critical attention to the Austrian charge that a stable price level is somehow undefinable or unnatural or both and that money-supply growth to forestall price deflation would have undesirable "injection effects."

I must not criticize Hetzel for leaving such issues out of his paper. He explicitly limited himself to the question whether Congress might be persuaded to issue and the Federal Reserve to accept a clearcut policy mandate. He explains how *lack* of clarity serves the self-interests of both. Congressmen can win points with their constituents by exhorting the Federal Reserve to achieve various benefits (low interest rates, in particular) and by blaming the Fed for inflation and

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recession and even for the slow economic growth sometimes alleged to account for inadequate tax revenues and thus for the Federal deficit. (Parenthetically, I would like to see an educational campaign to acquaint Congress and the public with the rudiments of capital and interest theory.)

Lack of a clear mandate preserves scope for Federal Reserve officials to defuse charges of malpractice, to claim credit for good economic results and disclaim responsibility for bad ones, and to play political games in preserving their autonomy. The Fed's notorious secrecy also serves the self-interest of its officials.

Hetzel offers shrewd insights into how the vagueness of the Fed's mandate and, in particular, the vagueness of the directives of the Open Market Committee enhance the dominance of the chairman. More nearly than I, for one, had realized, monetary policy is a one-man show.

Hetzel also reports that despite talk of targeting on monetary aggregates, especially since October 1979, the Federal Reserve still has not shed its traditional preoccupation with interest rates. He explains how its secrecy helps the Fed to indulge this preoccupation. For example, if its intentions were openly known, it could not manipulate interest rates *gradually,* and their sudden movements would attract attention and criticism.

It is gratifying and somewhat surprising that such blunt statements—not only by Hetzel but also by Presidents Black (1986) and Roos (1986)—come from within the Federal Reserve System. One of the few benefits of the System's decentralized structure is that it leaves scope within it for the activities of some "good guys," including, notably, the research officers in Richmond.

Since Hetzel himself has broached the topic of bureaucratic motivations and tactics, I will take advantage of his frankness by asking a few questions. How much and what sort of encouragement and discouragement do he and like-minded researchers receive at the Richmond bank and from the Board in Washington? Is some sort of official or institutional line on monetary theory cultivated within the System? If one is, as it appears to this outside observer, then *how* is that line cultivated, and what incentives do individuals have to conform to it? I have heard a few sketchy rumors—rumors not involving Richmond in particular, though—about the Board's taking financial and other reprisals against dissident Reserve banks and individuals. Is there any truth to such rumors? What courage must dissidents have to speak out?

Before closing, I would like to remark on the method that Hetzel employs. He practices methodological individualism in the style of

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the Austrian and public-choice schools. He helps his readers understand what they would want and how they would behave if they were in the positions of a member of Congress or a Federal Reserve official. (One of Hetzel's insights, to mention another example, appears in his explanation of the relatively low prestige of banking committees in Congress.) In this sort of analysis, introspection and imagination are important to recognizing, selecting, and interpreting the evidence for one's conclusions. Hetzel does not restrict himself to the aspects of his topic expressible in numbers. He does not rely, for example, on fitting "reaction functions" to convenient numerical aspects of congressional and Federal Reserve behavior. Doing so would have been pretentious and would have trivialized the topic.

Hetzel departs, in short, from the positivistic methodology that is, or until recently was, quasiofficial within the economics profession. (On the legitimacy of the methodological broadness that Hetzel allows himself, see McCloskey's papers of June and August 1983 and Ebeling's of 1985.) Hetzel's evidence and arguments might be called "unscientific." He constructs no formal model. He offers no "hypothesis" amenable to "testing" in a cut-and-dried way. Far from criticizing him on these grounds, though, I congratulate him on not being intimidated by the slogans of the methodological sermonizers. To refuse to deal with topics that resist fashionably scientific handling may be to set aside truly important issues.

Admittedly, though, it is difficult for a mere outside observer to judge how correct Hetzel's accounts are of what goes on inside the Federal Reserve. Still, all a reader can expect Hetzel to do is what he has in fact done: to lay out his observations, his understanding of people's motivations from what people say and do and from imagining himself in their positions, and his reasoning on how the evidence fits together, and then to invite possible critics to point out errors of fact or logic and to give a better account. This is how historians work, and their methods do indeed seem applicable to the issues Hetzel has been tackling.

In conclusion, Hetzel's paper contributes to further discrediting the old and now dying habit of routinely looking to government for solutions to all sorts of problems. Government is no monolith single-mindedly pursuing some clearcut public good. Instead, it is a congeries of individuals pursuing their own interests (which admittedly are not always narrow self-interest) in the particular frameworks of opportunities and rewards and penalties confronting them.

Hetzel's paper sheds new light on the shortcomings of discretionary and activist monetary policy in particular. It supplies further reasons for tying the monetary authorities down by clear instructions

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whose observance or violation can be monitored. I hope Hetzel and I are in agreement in favoring a price-level rule. Such a rule impresses me as about the best that anyone has thought of. It could be framed so as not to deserve the standard objections routinely urged against it. A variant of Irving Fisher's (1920) compensated dollar seems attractive. The government would maintain two-way convertibility between the dollar and whatever changeable physical quantity of gold was equal in actual market value to a specified bundle of goods and services. (The redemption medium need not be gold, however; the system would not be a gold standard.)

Personally, I favor an even more radical monetary reform, one that would involve abolishing the Federal Reserve. Hetzel no doubt finds it an interesting challenge and instructive experience to work from within the Fed as long as it exists. I wonder, though, if he really would deplore its abolition.

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STABILIZING THE DOLLAR IN A GLOBAL ECONOMY

Marc A. Miles

Every Thursday afternoon investors, reporters, and financial commentators anxiously await the latest figure on the nation's money supply. About every six weeks speculation mounts as the Open Market Committee of the Federal Reserve prepares to decide the course of monetary policy over the coming weeks. In the days following the meeting, money market participants and observers digest the clues in the Fed's buying and selling habits in an effort to determine if a policy change is at hand.

These familiar events certainly offer high drama, copious newscopy, and abundant opportunities for wagering, but they do not reflect an effective way to run monetary policy. At a practical level this approach is fraught with uncertainty. People are unsure of precisely what monetary policy is today or what the Open Market Committee will decide it should be tomorrow. The theoretical problems are also quite basic. The approach assumes that the Federal Reserve is an omniscient, omnipotent regulator of the quantity of money in the economy. The Open Market Committee is assumed to know precisely which money aggregate to stabilize, to know whether that number should be higher or lower, and to have a dependable technical staff that can readily achieve the desired result. These heroic assumptions, however, are at odds with the way world money markets operate. Casting the Fed in its role as only one player in this market raises serious doubts about the ability of current policies to maintain dollar stability. In fact, the global framework implies that truly effective policy requires a completely different set of rules.

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Peering Out into the Global Economy

While the importance of foreign markets is beginning to gain the attention it deserves, most monetary policy discussions in this country look no further than the Golden Gate Bridge or Statue of Liberty. The United States and its money markets are assumed to exist in isolation. Attention is focused almost exclusively on the Open Market Committee, with all dollars assumed to emanate from that source. Certainly the United States is large relative to most other countries, and much of its commerce and financial activity is self-contained. But in a world where telecommunication signals can be beamed instantaneously around the world, where space shuttles circle the earth every 90 minutes, and where everything from oranges to Mercedes are dispersed from where they are produced to the far corners of the earth, the importance of individual country borders fades. Countries are increasingly interconnected, and any policy that ignores a sizable chunk of the system must be immediately suspect.

There exists no better example of this interconnected economic system than the international money market. Today's money market is a highly technical, highly mobile operation. The latest movements in the money market are sped instantly via satellite around the world. Computers of large banks and other corporations continuously monitor interest rate and exchange rate quotations from markets in Europe, America, and Asia for fleeting profit opportunities. With the push of a telex button millions or even billions of dollars can change hands halfway around the world.

In this organized world money market, U.S. residents and the Federal Reserve are important participants, and the dollar is an important currency. But the U.S. dollar is only one of the primary monies traded, and the American people constitute only a fraction of those worldwide who use dollars. The Federal Reserve is only one of the institutions that supplies liquidity to the global market. Other central banks supply liquidity denominated in other major currencies. Even within the world dollar market, the Fed finds that an increasing number of dollars come from private institutions. When a person in the United States wants more money, he therefore has several alternatives. The money could come from the Fed, from foreign countries or the Euromarkets, and involve dollars or some other currency. Rather than an omnipotent supplier of money, the Fed is but one participant in the competitive, global money market.

A simplified analogy clarifies this point. There are 12 Federal Reserve Banks overseeing the regulation of banking institutions in their jurisdictions. Each district reserve bank issues paper money

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bearing the bank's unique seal. In a sense there are 12 separate monies and 12 separate central banks across the United States. Yet few would consider the Federal Reserve Bank of Dallas capable of implementing an independent monetary policy. The Dallas Fed supplies its own unique dollars, and its region is one of the largest in the country. But it still cannot control the number of "Dallas Fed" dollars, much less the total number of dollars, in its district. Banks and individuals have several avenues for transferring money to or from any of the other regions. A "tightening" of monetary policy by the Dallas Fed would create incentives for Texans to shift their loan demands "abroad." Texans would hold more dollars with non-Dallas seals or more deposits in non-Texas banks. Despite the physical and financial size of the Dallas Fed region, it is recognized that the money market is "global," incorporating all states.

Likewise the Federal Reserve must contend with the private sector's alternatives in today's global market. The U.S. market cannot be isolated. I now briefly examine how two of these potential avenues, the Eurodollar market and holdings of foreign currency-denominated money, diminish the Fed's ability to control the quantity of money.

The Eurodollar Money

The Eurodollar market can provide a cushion for the private market against the Fed's policy. If the Federal Reserve attempts to reduce the number of dollars in circulation, Eurodollar activity can expand. Domestic borrowers discover that at prevailing interest rates they cannot find as much financing as they desire, so they turn to the Eurodollar market to borrow more for their projects. With higher loan demand, Eurobanks offer slightly higher interest rates to attract more deposits to finance the loans.

This expansion does not imply a corresponding decline in domestic dollar deposits. The reason is that while domestic banks are required to hold reserves in only one type of asset—the monetary base—Eurobanks have no such requirement. When a Eurobank has dollars deposited into its accounts, it transfers any monetary base assets back to the home office in the United States. In return the Eurobank receives a deposit at the home office to use as its reserves. The U.S. monetary base is unaffected, but the global quantity of dollar deposits rises. Therefore, as the Fed attempts to reduce the quantity of deposits created in the United States, the expanding quantities of Eurodollar deposits help to keep the total quantity of dollar deposits unchanged.

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An interesting example of how Euromarkets are used to circumvent Federal Reserve policy is the reaction of banks to President Carter's 1 November 1978 attempt to restrict dollar growth. Part of the proposal was a directive by the Federal Reserve doubling the reserve requirements on large certificates of deposit (CDs) from 2 percent to 4 percent. Although the change was intended to slow the growth rate of the U.S. money supply, its major effect was simply to switch part of the CD market from the United States to the Eurodollar market. Creating dollar CDs now became relatively more expensive for the home office and relatively cheaper for Euromarket branches. Not surprisingly, the relative amount of large denomination CDs issued in the Eurodollar market rose steadily in the months following the November 1978 reserve requirement increase. The dollar liabilities of foreign branches of U.S. banks as a percentage of large U.S. domestic market CDs grew from 12.8 percent in November 1978 to 23.0 percent in August 1979.

In October 1979 the Federal Reserve tried again. An additional reserve requirement of 8 percent was applied against CDs of domestic banks above a certain level. This time, however, the Fed tried to plug the Euromarket loophole by simultaneously adding an 8 percent reserve requirement against any additional liabilities to foreign branches above a prescribed level. But as before, banks found ways to circumvent these restrictions on managed liabilities. The new loophole appeared because not only do banks have a choice of whether to raise funds through the parent bank or Eurobranches, but they also can choose which branch will make the loans. There is no requirement that money raised in the Euromarket be lent again to the U.S. private market through the parent bank. The loan could just as easily be booked directly from the Eurobranch. U.S. banks now found the reserve requirements on liabilities to foreign branches taxing the first lending route, but not the second. The reaction was predictable: a greater proportion of funds borrowed through Eurodollar deposits were lent directly to U.S. companies (or their foreign subsidiaries) by the foreign branch (Figure 1).

The Euromarket reacted similarly the following March, when the Federal Reserve raised the marginal reserve requirement and widened the range of liabilities to foreign branches to which the marginal reserve requirement applied. Direct lending again rose sharply. Following the elimination of the marginal reserve requirements in July 1980, the proportion of direct lending again decreased.

The Fed, of course, has tried other kinds of restrictions. Today, not only do CDs and liabilities to foreign branches have reserve requirements, but the same requirements also apply to the direct loans of

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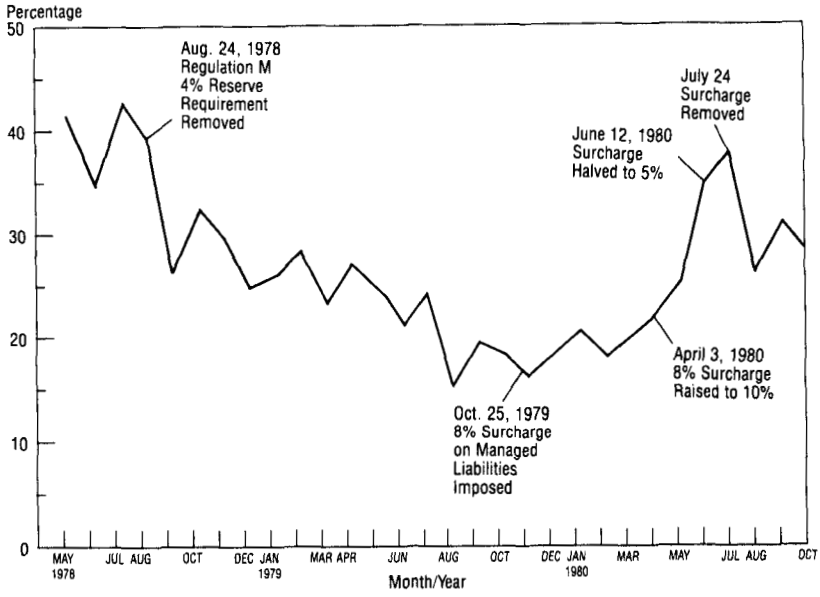
FIGURE 1
FOREIGN BRANCH LENDING: EVADING THE COSTS OF REGULATION



NOTE: Direct lending of foreign branches to U.S. private market as percentage of total foreign branch lending to United States. Data unadjusted for seasonal variation.
SOURCE: *Federal Reserve Bulletin* (Washington, D.C.: Federal Reserve Board); see also Miles (1984).

foreign branches to U.S. residents. If Citicorp's Cayman branch lends dollars to General Motors in Detroit, Citibank in New York has to hold noninterest-earning reserves against the loan. Again, however, there are abundant opportunities to circumvent these restrictions. For example, the Cayman branch could lend to a foreign subsidiary of GM, which in turn could lend to the Detroit office. Or GM could borrow from the Cayman branch without receiving a direct loan, say by floating debt on the European commercial paper market.

The Euromarket is a clear example of how the global market permits banking activity to move beyond the Fed's control. The Fed's influence over the quantity of dollars is clearly shrinking. At the end of 1971 the net size (excluding interbank deposits) of the Eurodollar market was only about $20.9 billion. By 1975 this figure had more than tripled to $63.8 billion, and by the end of 1983 it had surged to

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at least $353.2 billion. This 1983 figure is equivalent to 65.7 percent of M1, 16.1 percent of M2, and even 13.0 percent of M3.

The Role of Foreign Money

The existence of global money markets opens other opportunities to blunt the impact of the Fed's attempts to control the growth of money. One of these alternatives is foreign monies. Traditional approaches to monetary policy assume that individuals and businesses in the United States conduct their business only in dollars, so the Fed (from which all dollars are assumed to emanate) can influence the level of business. This assumption, however, is somewhat analogous to the assertion that Texans use only dollars with Dallas Fed seals or only deposits from Texas banks.[1] But Texans have a choice; they can borrow from banks in other regions or use dollars with different seals.

In the global money market, dollars are only one of several monies that people and institutions use for trading or making investments. They could, for example, conduct their international business in Swiss francs, deutsche marks, or other money assets over which the Federal Reserve has little direct influence. The idea that Americans would have some of their cash holdings denominated in other currencies is not astounding. Travelers, traders, and people in border areas have always employed foreign monies in their dealings. Furthermore, it is common to assume that bond and equity holders diversify their portfolios across currency denominations. Diversification reduces the risk of exchange rate depreciation, which can potentially inflict capital losses on assets denominated in a given currency. The money diversification argument simply extends this common sense behavior to the decisions about how to hold money.

The issue of money diversification has been discussed in the economic literature under the topic of "currency substitution." The basic argument is that as currencies have become more volatile, the incentive to diversify monies has increased. The diversification in turn produces private market flows of money between countries. The theoretical implication is that even with perfectly flexible exchange rates the central bank cannot insulate the domestic money supply from foreign countries. Empirical research indicates that such money

[1]This analogy does not strictly hold because the intervention by the various Federal Reserve Banks to buy and sell at parity dollars with seals from other districts makes these dollars perfect substitutes on the supply side.

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diversification may be a significant phenomenon (Miles 1978; Miles and Stewart 1980; Brittain 1981; Laney 1981; McKinnon 1982).

More Conventional Problems with the Traditional Approach

What Is the Relevant Money Supply?

The existence of the global market raises some serious questions about how omniscient and omnipotent the Fed really is. However, the global market is only compounding other doubts about the relevance of the traditional policy approach. For example, a basic assumption is that the Fed effects its policy by varying the quantity of money. But what precisely is this "money"? The monetary literature abounds with articles trying to define precisely what should be included in a relevant definition of money, yet the debate on this fundamental policy point is far from resolved. Ask any two economists, and you are bound to get at least three different answers. Particularly in the last decade, as inflation and regulation have spurred financial innovations, economists have come increasingly to realize that what is used for money in the United States extends far beyond such traditional concepts as M1 or even M2.

Today M1 includes currency in circulation, demand deposits, and other checkable deposits such as negotiable orders of withdrawal (NOW accounts) and credit union share draft balances. These components are all liabilities of institutions that at least appear to be under the control of the Federal Reserve. Hence the attractiveness of M1 as a policy guide; it is an aggregate that the Fed might be able to influence directly. There are, however, numerous domestic alternatives to the monetary assets included in M1. For example, there are time deposits, certificates of deposit, money market shares, repurchase agreements, commercial paper, and credit cards, not to mention such global market alternatives as Eurodollars. These alternative monetary assets fall less and less under the control of Federal Reserve regulations, and their wide availability means they are increasingly likely to respond to the demands of the private sector. They provide direct methods for the public to get around the dollar liquidity policy of the Fed.

Today's M2 is closer to a relevant definition of money than M1. M2 adds to M1 not only small time deposits, but also such assets as overnight repurchase agreements, overnight Eurodollar deposits in the Caribbean, and money market mutual fund shares. These newly included assets are clearly outside the Fed's control. Is even M2 the relevant definition then? Probably not. If overnight Eurodollars at

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Caribbean branches (included in M2) are relevant, why not overnight Eurodollars at other banks? Any why not longer-term Eurodollars? Longer-term Eurodollars at Caribbean branches do not appear until the broad measure of liquidity, L. Longer-term repurchase agreements do not appear until M3. Money market funds that belong to institutions also do not surface until M3. In addition, with the current incentives to increase returns and reduce costs in financial markets, financial innovations continue to appear. Such innovations should be included in any relevant money supply, but the Fed typically does not control these assets. Quite likely, the innovation occurred in the first place to avoid a Fed regulation or barrier. Money market funds grew in response to interest rate ceilings. The growth of the Eurodollar market reflected efforts to avoid Regulation Q, rising reserve requirements, and other Fed-imposed restrictions.

Given these alternative assets, were the Fed, say, to reduce the supply of the monetary base in an attempt to reduce M1 (or M2), the private sector could respond with greater use of money market funds, repurchase agreements, and credit cards. The Fed's policy might even successfully reduce M1. But since the relevant definition of money instruments includes more than what is measured by M1, the decline provides a false signal. The decline in M1 is offset by the rise in the alternative instruments. While the Fed, through its limited powers, might alter the relative proportions that the public holds in regulated versus unregulated money, it is unable to control directly the total relevant quantity of money.

What to include in the relevant money supply is not a new issue. Discussions can be found in Gurley and Shaw (1959), the Radcliffe Committee Report (1959), and even the 19th-century debate between the British banking and currency schools. It is an empirical question that may never be resolved to everyone's satisfaction. One empirical criterion that has been suggested is the degree of correlation between a particular definition of money and nominal GNP. By this measure the empirical justification for L (which the Fed clearly does not control) is at least as strong as that for M1. This year's percentage change in nominal GNP is significantly related to this year's change in L. Statistically there is a percentage point for percentage point change in the two numbers. In fact, the movements in L even explain marginally more of the variation in GNP than do the movements in M1.

Can the Fed Control M1?

Even if the problem of defining money is put aside, are traditional policy approaches likely to succeed? Assume domestic M1 is the

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relevant money. Are we assured in even that extreme case that the Fed can adequately regulate the "money supply" to achieve its stated policy objectives? Contrary to prevailing perceptions, it is far from clear that the Fed would be the dominant player in this scenario. Any standard money and banking textbook describes how the reported M1 is the end product of decisions by the Fed, the public, and commercial banks. The Fed attempts to influence M1 through open market operations, minimum reserve requirements, and the discount rate. The public affects the level of M1 by choosing how much money to hold in currency versus deposits, and by deciding what proportion of deposits will be transaction versus time deposits. Banks can influence the supply of money by deciding whether to hold reserves over and above those required by the Fed. The textbook then summarizes these various influences as the product of two components: the monetary base, assumed to reflect the influence of the Fed, and the money multiplier, reflecting primarily the influence of the public and commercial banks. An enlightened book would then question which of the two components exerts more influence over the level of money. Unfortunately, many of the books stop short of this question, assuming instead that the Fed's behavior dominates movements in the money supply. But that relationship has been far from perfect. In fact, historically, swings in the money multiplier have had a significant effect on the movements in money.

For example, Cagan's (1965) study of the determinants of the money supply showed that the monetary base and the Federal Reserve's actions were by no means the dominant force determining the course of money. In fact, over the period 1875–1960, the public's ability to vary the amount of currency relative to bank deposits (the currency ratio) accounted for about one-half of the cyclical variation in money. Cagan commented (p. 24):

> [I]n discussions of cyclical movements, high-powered money and the reserve ratio have generally received all the attention, while the currency ratio has been little noticed. One reason for the differential treatment is that sources of variation in high-powered money and the reserve ratio involve activities of the government and banks—both easy to discuss (and exaggerate)—whereas sources of the variation in the currency ratio involve actions of innumerable holders of money and are, except in panics, obscure. While many students of the money supply have been aware of variations in the currency ratio, the present results highlight their importance, not only in panics but also for all cycles in the money series.

A subsequent study by Laffer and Miles (1977) of the post-World War II period reinforced Cagan's findings. We found that over months,

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quarters, and semiannual periods the public's abilities to influence the ratio of currency to deposits and the composition of deposits were far more important than changes in the monetary base for explaining the movements in M1. Not until annual changes did the influence of the monetary base begin to become important. But in most of the years examined, the United States was under the Bretton Woods fixed exchange rate system, which permitted the monetary base to flow easily into and out of the country. With integrated global markets, it is quite possible that even these annual changes in the monetary base reflect changes caused by the public's demands as much as Federal Reserve policy.[2] The results of these two studies, therefore, seriously question the Federal Reserve's ability to control even M1 with any accuracy.

Some Other Questions

Global markets, domestic money substitutes, and the responses of the public certainly raise some haunting questions about recent approaches to monetary policy. They are, however, not the only sources of concern. For example, even if the problems of defining and controlling the relevant money supply could be solved, other informational problems remain. We would still have to measure accurately the supply of money at a given time, and our track record in this area is far from perfect. The most celebrated mistake occurred in the fall of 1979. While the person at Manufacturers Hanover Bank responsible for transmitting the weekly data to the Fed was on vacation, the substitute inadvertently placed some figures in the wrong column and the weekly money supply figures were misquoted by $3.5 billion.

The problems of measurement are exacerbated by the need to correct the data for seasonal patterns and trading day variations. Because these adjustments are estimates, just like the raw numbers, the opportunities for errors abound. These errors show up as the data are revised. In fact, there is very little relationship between the pattern of period-to-period changes in the initially released data and the pattern in the data after final revisions have occurred. Thus, preliminary or first-released data may be of very little use for guiding policies based on historical (completely revised) data.

The seasonal adjustment problem also raises doubts about other assertions underlying current policies. For example, causality tests

[2]Recent allegations about the Bank of Boston and other banks failing to report substantial foreign shipments of dollar currency are important evidence that, even without fixed exchange rates, the Fed may not control the quantity of, much less have an accurate measure of, total Federal Reserve liabilities in domestic circulation.

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by Sims (1972) and others have probed for evidence of a unidirectional causal relationship running from the money supply to nominal income. However, Feige and Pearce (1979) found that when a Sims causality test was applied to seasonally unadjusted data for money and income, in almost all cases there was an absence of causality. Feige and Pearce found similar results in two other test procedures they examined. They concluded "that the empirical results are highly sensitive to the use of seasonally adjusted data" (p. 530).

Where Does This Leave Us?

The questions raised thus far about our approach to monetary policy emphasize the failings of the money *supply* as an explicit, dependable, direct policy signal that both the Federal Reserve and the public can use with confidence. The impact of giving the money supply a central role in determining monetary policy in our global economy can therefore by summarized in one word—uncertainty.

Money is a yardstick. It is a means of conveying information about the relative and absolute prices of all commodities we purchase or sell. What therefore is of direct concern to most of us is not the *number* of dollars in the economy, but the *stability* of the dollars we hold in our wallets and bank accounts. Is the prevailing yardstick giving us meaningful information for making decisions about not only today, but tomorrow or even a year from now? The uncertainty exists because the monetary authorities fail directly to transmit or act upon the information we need about the value of the yardstick. Instead the world is characterized by guesswork. Businesses and commentators, for example, are busy guessing "Will the money supply be up or down?" "How will the Fed respond to such a change?" and "What is the probable impact of the Fed's reaction?" These questions do not have obvious answers, as witnessed by the money market column of the *Wall Street Journal* where "experts" change their opinions almost daily. The Fed's choices are also full of uncertainties. How big is the money supply? Is that too much money? How much or what type of intervention, if any, is necessary? The potential problems and errors multiply.

The role of the dollar as a yardstick is analogous to yardsticks used in specific industries. Take, for example, shoe sizes. Like the dollar, shoe sizes are an information system, providing a way to compare different pairs of shoes at one time, or over time. All size 10C shoes, for instance, should be almost precisely the same size, regardless of which style shoe is chosen. As long as local shoe sizes remain stable, they are profitably relied on and used by all. But suppose the system

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were not stable. The shoe industry would quickly fall on hard times if shoe sizes fluctuated from month-to-month, much less day-to-day. Each month a person wanting shoes would have to have his feet remeasured. Shoes marked as a certain size would also have to be dated. With sizes changing every month, it would be hard for store owners and customers to order pairs of shoes. Ordering would require forecasting what sizes will be on the day the order is shipped. The necessity to forecast repeatedly (not to mention occasionally forecasting incorrectly) raises the cost of using the system. Obviously the worth of such a yardstick declines. At some point people will resort to ignoring the yardsticks completely ("I'll just keep trying on pairs until one fits"), developing their own system, or maybe using a more stable foreign system. The industry experiences a period of turmoil, uncertainty, and slow growth.

The shoe industry avoids such turmoil by setting up and maintaining a basic unit of account, the standard shoe size. Either the government sets the standards and makes sure that the standards are maintained, or a trade group agrees on an acceptable standard. In either case a system for transmitting relevant information to the market is created. Shoe sellers and consumers then adjust their behavior accordingly.

It is the same for money. The basic money yardstick must be determined. Again, the government can set the standard for what its monetary liabilities are worth and make sure the standard is retained. But where the government fails to set the standard directly, the private market settles on the value of the standard. Under current monetary policy, the government does not set the standard. Instead we are bombarded with quotations about the estimated money supply. To continue the analogy, it is a little like walking into a store to buy a pair of shoes and being shown all the foot measures in the store. You wonder what the number of measures has to do with buying a pair of 10C shoes. The financial markets face a similar quandary. They desperately want information about the size of the yardstick but instead are shown the approximate number of one type of measure sticks. How is this number to be interpreted? Is a certain number of this type of measure stick directly associated with a specific size of yardstick? Few would claim it is. The Fed is no longer providing the information the market needs.

Stabilizing the Dollar in a Global Economy

The problems of trying to stabilize money aggregates in a highly flexible, global money market have been outlined. What are the

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alternatives? How can the dollar be most efficiently and effectively stabilized in a global economy? My answer has three major points. First, our approach to monetary policy must be shifted 180 degrees from focusing on the quantity of money to focusing on its price or value. The Fed should agree to adopt appropriate "price rules" where some relevant market prices are stabilized. Under price rules, a target value is chosen for each price, and the Fed's sole guide is to keep that value stable.

A price rule works because the Fed is defining the basic monetary unit of account in terms of something observable. The Fed calls the basic unit of its liabilities the dollar. It then tells the market that these dollar liability units will always be redeemable at a certain price in terms of the observable item. The basic dollar unit now has a specific value. Even better, so too do all the forms of money that are convertible into the basic unit. Bank accounts, Eurodollar accounts, money market mutual funds, etc. may not be controlled directly by the Fed, but as long as the issuers of these monies define and redeem these accounts in dollars, the Fed is stabilizing the *value* of these monies, too. Immediately we see that the Fed need no longer worry about the quantity of monies it cannot control; its only concern would be the value of the money it issues directly, standing ready to define it, and as a result helping to bring stability to even the monies beyond its direct grasp.

One of the advantages of such a policy is that it eliminates most of the current guesswork. Information is transmitted directly through the marketplace (by watching the appropriate commodity or financial quotations) to both the Fed and the private sector. The Fed knows precisely when to redeem and how much. Any tendency for the target value to move requires the Fed to step into the market. The Fed also knows that it must remain in the market as long as the tendency for movement remains. No elaborate information gathering or ad hoc policy planning is required. The private sector also knows what to expect. This side of the market is interested in the Fed continuing to "play by the rules." The private market has only to check the targeted value. If, say, spot silver prices are targeted, is the dollar price of silver stable? If the price does move from the target value, does it start moving back? If so, the Fed is doing its job. The public simply watches the commodity ticker tape for the latest quotes.

While the Fed is busy assuring the stability of the value of money, the quantity of money takes care of itself. The Fed does not have to worry whether or why money demand has risen or if velocity is stable. If the private sector wants more money, for whatever reason, the Fed will find out soon enough. The dollar price of the target commodity

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will fall, requiring the Fed to react by buying back the commodity in exchange for money. At the stable target price, the private sector sees that the available money expands and contracts with its needs.

Second, one price rule is not sufficient. At least two price rules are needed. The reason is that there are three prices we would like to stabilize: the spot price level, the forward price level, and interest rates. People are concerned not only with what they must pay for groceries today, but also with what they will have to pay six months, a year, or two years from now. Using only one price rule, the government could stabilize today's price level or the price level a year from now, but not both. To simultaneously stabilize both sets of prices, the Fed would have to carry out two separate price rule intervention mechanisms.

If a policy to stabilize both spot and forward prices were adopted, it would also act to stabilize the third price, the market rate of interest. The ups and downs in interest rates primarily reflect shifts in the expected rate of inflation, which in turn reflects how much the market expects the value of the basic dollar unit to depreciate over time. If the spot and forward values of the dollar unit were being directly stabilized, so would the expected change. Hence, interest rates would become stable. The closer the stabilized forward price is to the stabilized spot price, the lower would be the market rate of interest. Of course the two stabilized prices do not have to be spot and forward prices. The Fed could choose alternatively to stabilize an interest rate and one of the two price levels. For example, the two targets could be spot prices and interest rates on one-year T-bills. Stabilizing these two prices is equivalent to stabilizing the price level one year forward. In other words, stabilizing any two of the three relevant prices stabilizes the third.

This discussion of the three price targets illustrates why a return to a simple spot gold standard is not likely by itself to be the panacea some proponents claim. A simple gold standard is a spot price rule. It attempts to stabilize today's price level in terms of gold. Without an additional price rule, however, it does little to stabilize either the forward price level or interest rates. Inflation in the near term may fall, but we have no guarantee of what the price level or inflation will be in the longer run. To provide the guarantee, the spot market intervention would have to be combined with intervention to target either the forward price of gold or a market interest rate.

The third point is that ideally the interventions chosen would overcome two objections to a commodity standard, the "terms of trade" problem and the fear that reserves could become depleted. The terms of trade problem is most pronounced when the price of

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only one commodity is targeted. Say the Fed were stabilizing the spot dollar price of wheat, and for whatever reason, the value of wheat in terms of other commodities were to shift. While dollar wheat prices might remain stable, dollar prices of other commodities and goods would shift up or down. In this scenario, targeting the spot price of wheat does not guarantee stable prices in the spot general price level. The obvious solution is to employ a price rule involving a basket of commodities instead of just one. The broader the basket, the closer the basket approximates the general price level, and the smaller the terms of trade problem.

The finite reserve problem occurs as the government's stockpile of the targeted commodity declines. The market begins to fear that the government will no longer be able to stand behind its policy, and the price rule collapses in the ensuing run on reserves. The solution to this problem would be to design an intervention mechanism whereby the Fed did not actually have to hold reserves.

In *Beyond Monetarism* (1984) I discuss one possible set of price rules that could overcome these problems. One price rule would require the Fed to target and stabilize the interest rate on long-term government bonds. The intervention scheme would direct the open market desk to buy bonds as interest rates rose to the upper limit of the target range, and sell them as the lower limit is approached. The Fed would continue to buy and sell as necessary to keep the interest rate within the targeted band. The other price rule would require the government to stabilize the price of a futures contract for a broad bundle of commodities. The innovative aspect of this proposal is that the futures contract, like many current financial futures contracts, can be payable in cash rather than the actual commodities. The need for the government to hold commodity reserves is eliminated.

The contract would be a promise to pay the cash equivalent of a predetermined weighted average of commodity prices on the settlement date. If the price of the contract rises toward the upper limit of the range, the Fed just creates new ones and offers them on the market at the target price. If the price falls too far, the Fed buys back contracts at the target price. The government could at any moment be long or short in these contracts. The number of contracts outstanding is not important, only the stability of the price at which they settle. While this commodity contract does not now exist, a proposal is currently before the Commodity Futures Trading Commission to permit trading of such a contract on the New York Futures Exchange. The contract would be based on the Commodity Research Bureau's index of commodity futures.[3]

[3]See "The CRB Futures Price Index—A 'Basket of 27 Commodities' That May Soon

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Conclusion

Twenty years ago under the Bretton Woods System, we had relatively stable price levels, stable interest rates, and stable exchange rates. The heart of that system was a set of price rules in which the United States focused on stabilizing dollar interest rates and the dollar price of gold, while other countries focused on stabilizing the dollar value of their currencies. Starting in the mid-1960s, however, that system was dismantled, and the focus of monetary policy was shifted in an entirely different direction. The ensuing period has been characterized by increasingly unstable dollar prices, interest rates, and exchange rates.

It is this volatility of prices that we all seek to redress. While my proposal may or may not provide the final answer to this problem of dollar stability, it does point out the major issues. We must get away from discussions of the amorphous supply of money and refocus our attention on what is happening to its value. We must get the Fed away from futile, vaguely defined monetary policies and return it to more efficient policies with some chance of success. We must eliminate the uncertainty that exists for both the Fed's Open Market Committee and the retired bond holder. Although the precise details of this policy need further refinement, it is clear that the policy must involve price rules.

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ASSESSING THE FED'S CONTROL OF DOMESTIC MONETARY POLICY

Anna J. Schwartz

Marc Miles (1986) offers two contrasting assessments of the capacity of the Federal Reserve to conduct domestic monetary policy. On the one hand, he asserts that money targeting by the Fed is futile because of private sector alternatives to dollar holding exemplified by the Eurodollar market and foreign-currency denominated money, domestic money substitutes, and money measurement difficulties. On the other hand, he asserts that if the Fed were to adopt his rule to stabilize two of three prices—spot commodity prices, futures prices, and an interest rate—its control problem would vanish. Each of the assessments is a gross distortion. The facts do not support Miles's description of the conditions in which the Fed currently operates, and economic analysis does not support Miles's vision of how the Fed should operate. Let me detail the reasons that his views are unacceptable.

The Eurodollar Market

According to Miles, one proof that the "Fed's influence over the quantity of dollars is clearly shrinking" is that in 1983 the Eurodollar total figure was the equivalent of "65.7 percent of M1, 16.1 percent of M2, and even 13.0 percent of M3." Miles clearly believes that Eurodollars are M1 money. Except for insignificant amounts, they are not. Even if Eurodollars are short-term deposits—and predominantly they are not—they first have to be converted into a checking deposit with a U.S. bank before they can be used as means of payment. If Eurodollar banks hold demand deposits with U.S. correspondents, those deposits in fact reduce the money supply to the U.S. nonbank sector.

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The Eurodollar market is essentially a market for lending time deposits and largely an interbank money market, with banks both parties in Eurodollar transactions. The Eurodollar market channels funds from banks with net nonbank deposits to those with net nonbank loans. The market—a response to U.S. regulation—exists because of low transactions costs. These costs are often higher between banks within the United States when they deal with each other directly than when they deal with each other indirectly through the Eurodollar market. The ultimate objective of the transactions is to channel funds from a nonbank lender to a nonbank borrower but a chain of several banks intervenes. As a result, interbank wholesale transactions are a multiple of retail transactions with nonbank customers. Eurobanks distribute liquid assets, usually a large time deposit or a certificate of deposit, with a maturity as short as overnight or as long as several years. These funds appear on the asset and liabilities side of Eurobank balance sheets, with the spread between the interest rates at which they will be able to borrow and lend in the future determining the match of maturities of assets and liabilities.

Policy measures the Fed undertakes are not impaired by the Eurodollar market. If the Fed sells Treasury bills in the open market, dollar liquidity declines. The existence of the Eurodollar market makes no difference. Moving funds from or to New York to or from London or the Cayman Islands does not offset the rise in interest rates at home as well as abroad due to the decline in dollar liquidity. Miles's assertion that the Eurodollar market shrinks the Fed's control over dollar creation is unfounded.

Currency Diversification

Miles is more restrained in his statement about the effect of foreign monies in blunting "the impact of the Fed's attempts to control the growth of money." He notes, "the theoretical implication is that even with perfectly flexible exchange rates the central bank cannot insulate the domestic money supply from foreign countries," and cites empirical research that "such money diversification may be a significant phenomenon."

No one will dispute the theoretical proposition that domestic residents might demand foreign currency to reduce exchange risk or to minimize transaction costs. Similarly foreign residents might demand currency from abroad as well as their own currency. In an empirical analysis for Canada and the United States for 1960–1975, Miles reported statistically significant substitution between Canadian and U.S. dollars. Other formulations have questioned the specification of the

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demand function that Miles used and reported insignificant substitution. But even if a statistically significant result is obtained, the relevant question is the quantitative size of currency substitution. The evidence is that Miles has greatly exaggerated the importance of the effect of currency substitution on the behavior of U.S. money aggregates.

The demand for the U.S. dollar appears to respond to change in domestic interest rates to a far greater extent than it responds to change in the rate of return on other currencies. This seems also to be the case for the advanced countries generally, not merely for the United States. For less developed countries with excessive monetary growth and high inflation rates, dollarization is often the response of domestic money holders. This phenomenon tells us nothing about Federal Reserve domestic monetary control. Contrary to Miles's account, foreign money holding in the United States thus far has been a negligible problem for the Federal Reserve.

Domestic Money Substitutes

Miles argues that if the Fed were to reduce the supply of monetary base and thereby possibly reduce M1, "the decline in M1 is offset by the rise in alternative instruments." Let me note parenthetically that Miles's reference to credit cards as an alternative to money betrays misunderstanding. The use of credit cards does not increase the money supply. It merely permits a temporary deferment of payment in money for a purchase. The seller may claim immediate payment from the credit card issuer but the purchaser must ultimately repay the loan extended by the credit card issuer.

The pronouncement that the liabilities of nonbank financial intermediaries are close substitutes for M1 money that would change in the direction opposite to that sought by the monetary authorities, thereby frustrating their attempt to control the quantity of money, can be traced at least as far back as the 19th-century British banking and currency schools controversy, was tentatively revived by Gurley and Shaw in the 1950s and stated without qualification in the 1959 *Report* by the Radcliffe Committee.

Miles, following this tradition, refers to "regulated versus unregulated money." However, every issuer of so-called unregulated money must maintain a checking account deposit in a commercial bank to enable holders of those issues to convert them into means of payment. There is no escape for these issuers from effects of changes in Federal Reserve provision of reserves to the commercial banking sector.

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Gurley and Shaw popularized the terms inside money, meaning money issued by banks, and outside money, meaning base money issued by the monetary authorities. Inside money has always been constrained by the obligation of issuers in a convertible fiat money system to redeem their liabilities on demand in outside money units. Institutions offering close substitutes for monetary items have been similarly constrained because they redeem their liabilities with inside money. Only outside money cannot be altered by transactions among the public or between the public and the banks other than the central bank.

No one has yet produced evidence that a Fed decision to reduce the growth rate of the monetary base does not have the predicted contractionary consequences for the economy, or that its decision to expand the growth rate of the monetary base does not have the predicted expansionary consequences. There is no evidence that domestic money substitutes have interfered with the Fed's power to contract or expand the economy.

Definition of Money

Miles asks, what precisely is money? The concept of money as a collection of assets that yield identifiable pecuniary and nonpecuniary services has not changed over the centuries since monetary economies emerged from barter conditions. What at times has been ambiguous are the empirical counterparts of the concept. In the 19th-century controversy about the definition of money centered on bank notes following their introduction and later on deposits. The new instruments that have recently been introduced all represent adjustments to a transition from regulatory control of interest payments on deposits to an unregulated market determination of those payments. The transition period is likely near its end. If history is a guide, the assets now commonly used as money will be acknowledged in a definition that will gain acceptance until the next example of an inside money newcomer appears.

Behavior of Currency Ratio

Miles attempts to clinch the argument with respect to the Fed's alleged impotence by citing the feedback effect of business on the currency ratio. About half of cyclical variations in the rate of change of the quantity of money is attributable to the contribution of the currency ratio, the balance divided about equally between the base and the reserve ratio. During business expansions larger currency holdings relative to deposits reduce the ratio's contribution to money

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growth; during business contractions, smaller currency holdings relative to deposits increase the ratio's contribution to the growth rate of money. The behavior is similar to that of the currency-consumer expenditures ratio.

If there is one variable that the Fed can observe for which it has time series data for the past 70 years, it is the currency ratio. What would prevent the Fed from neutralizing movements in the currency ratio by open market operations if it believed that the ratio was not affecting money supply growth in the manner that the Fed desired?

Measurement Errors

For Miles to suggest that weekly measurement errors and seasonal adjustment problems in the money figures diminish Fed control is a proposition that only the naive will credit. What the Fed can control without any measurement problems is its own balance sheet. With respect to the frequent and substantial revision of the money figures, since the Fed is itself the primary source of data required to measure the money supply, it can surely improve the procedures involved in estimating the money aggregates. With respect to seasonal measurement problems, it is the Fed that injects seasonal movements into the money aggregates. The seasonal factor in money is not there because of climate or similar circumstances. The seasonal movement the Fed injects is sizable and variable from year to year. There is no seasonal factor to correct until the Fed has introduced seasonal movements.

Miles's Proposals

Miles does not propose to eliminate the Fed after this demonstration of the futility by his lights of the Fed's efforts to control money growth. Instead he replaces the impotent image with an image of a purposeful and effective authority. The Fed's sole guide, according to Miles, should be to keep the value of two of three prices stable within a target range, leaving open the choice as between spot and forward prices, or spot prices and interest rates on one-year T-bills or possibly long-term government bonds.

There are at least three fatal problems involved in the proposal. It overlooks lags in the effect of the Fed's actions, it ignores conflicting signals that the price and interest rate series may emit, and it confounds movements in the price series that are nonmonetary in origin with responses to monetary impulses.

The Fed does not directly control the price level. The link between price changes and monetary changes over short periods is loose and

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imperfectly known. The stock of money *on the average* is systematically related to the price level. Over short periods of time there is much variation in the relation. There is much evidence that monetary changes have their effects on prices only after a considerable and variable lag. If spot prices are rising, that may be the effect of expansionary actions the Fed has taken months or even in years past. Contractionary actions that are then begun may not have their effect until months or years later, and will therefore be pursued with a roller-coaster effect. When spot prices are falling and futures prices rising or spot prices rising and futures prices falling, as any chart of the movements of the two series will show is not uncommon, what should be the Fed's guide? And if interest rates agree with one of the price series but not the other, is the action the Fed is supposed to take based on a changing two-thirds majority?

Short- and long-term interest rates, as we know from yield curves, do not parallel one another. Which rate should the Fed regard as the determinant of its actions? If interest rates are rising beyond the target band, should the Fed be reducing its earning assets because, according to Miles, "ups and downs in interest rates reflect primarily shifts in the expected rate of inflation." My understanding of interest rate behavior is that, over periods up to about six months, a reduction of the Fed's earning assets will reduce liquidity in the economy, thus inducing a rise in interest rates, and exacerbating the upward movement Miles argues will be stabilized.

Finally, movements in prices reflect the influence of nonmonetary as well as monetary factors. Miles is quite correct that in this respect a broad-based index is superior to the spot price of gold. Price movements of individual commodities may reflect relative demand and supply conditions in the market for that commodity more so than aggregate demand conditions. Spot commodity prices and futures commodity prices, however, cover only two dozen or so raw materials that are peculiarly subject to relative price changes. Actions intended to stabilize these prices may well destabilize the price level in general.

Having offered this bill of particulars indicating why I reject Miles's assessments that the Fed is impotent to achieve noninflationary monetary growth and that its influence would be benign and effective if it attempted to stabilize prices and interest rates, let me conclude on a positive note. I agree fully that the spectacle of tea-leaf reading of the Fed's intentions following the weekly money announcement and the six-weekly FOMC meeting indicates that something indeed is wrong with the way monetary policy is currently conducted.

Reference

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THE KNOWLEDGE PROBLEM UNDER ALTERNATIVE MONETARY REGIMES

William N. Butos

I. Introduction

During the past decade a significant change has occurred in the kinds of questions explored by monetary economists. Heretofore, one of the central issues concerned the "rules versus discretion" debate of a central bank empowered monopolistically to supply base money. However, with the publication of studies by Klein (1974), Thompson (1974), and Hayek (1976/1978), the range of alternatives expanded to include the possibility of regimes based on the private provision of inconvertible media of exchange. Subsequent research by White (1984b) rehabilitated the idea of free banking with fractional reserves and full convertibility of a commodity money. In addition, laissez-faire cashless payments systems have been studied by Black (1970), Fama (1980), and Greenfield and Yeager (1983).

In general, the literature on private provision of money has focused on the theoretical properties of such regimes, especially in connection with the constraints necessary to ensure stability of the banking structure and the value of money. An equally important body of research by White (1984a), King (1983), Rockoff (1974), and Rolnick and Weber (1983, 1984) has examined historical episodes of market alternatives to government provision of money.

Consideration of alternative monetary regimes might proceed in terms of the inherent problem of the effective acquisition, utilization, and production of knowledge in an economic system. The purpose of this paper is to explore the problem of constraints on knowledge as it applies to monetary regimes. To limit the range of the largely

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critical discussion, three cases will be considered: the current regime, i.e., the Federal Reserve System (Fed); the monetarist regime, which relies on a monetary growth rate rule; and a regime of competing, inconvertible currencies as proposed by Hayek and others.

Section II provides an overview of the "knowledge problem." Section III examines current and monetarist regimes, and section IV discusses a regime of competing currencies. Section V summarizes the major results and implications of the paper and suggests areas for further research.

II. The Knowledge Problem

One way societies have attempted to overcome constraints on knowledge is by developing media of exchange. Economists are in general agreement that money is an efficient device for coordinating individuals' plans. Yet, because money is ubiquitous and plays a crucial role in coordinating plans, a monetary system faces special difficulties if money itself or attendant institutions become sources and conduits of disruption. This prospect has a significant bearing in assessing monetary regimes. Regimes may differ in how well they utilize current information and adapt to new and novel information; if so, this would figure prominently in their evaluation.

In analyzing the knowledge problem as it pertains to monetary regimes, it is necessary to treat regimes as autonomous decision-making units. This means that, in addition to whatever characteristics differentiate them, they share a property relative to the system in which they function. Both the legally endowed Federal Reserve System and the undesigned market structures of Hayek's system of competing currencies constitute loci of knowledge activity. Although both function in frameworks of different constraints and rules, the presumption must be that the content of their knowledge does not coincide with that of the economic system's functioning units.

The claim is that knowledge is not redundant between any two decision-making units. This claim carries the implication that a monetary regime's effectiveness in coordinating the plans of individuals (or in offsetting the results of those plans) depends on its success in acquiring and anticipating knowledge as well as usefully organizing such knowledge to guide its actions. Since knowledge is not uniformly distributed across different minds, the "knowledge problem" is precisely that constraints exist on what can be known.

Given that differential knowledge distinguishes decision-making units of the monetary regime from those of the economic system, it is useful to structure the discussion around two main questions: What

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is the kind of knowledge that individuals and the economic system produce, and can the decision-making units of the monetary regime acquire this knowledge?

The central element of complex orders, such as the market, is the absence of any locus of control. Knowledge is not centered in any one place; instead, it is dispersed. As Hayek (1948, p. 78) observes, the division of knowledge presents "the problem of the utilization of knowledge which is not given to anyone in its totality." Knowledge exists in the form of "objective" market data, such as prices and quantities, which express outcomes of transactions undertaken by individuals. Knowledge also exists in the form of unorganized "practical" knowledge of "particular circumstances of time and place" (Hayek 1948, p. 80). It is by acting on this *dispersed* knowledge that each individual contributes to changes in prices and the pattern of resource allocation. In effect, individuals' specialized and particulate knowledge is transformed into outcomes (and new knowledge) that are socially beneficial.

In viewing the market process as a mechanism by which bits of knowledge are transformed into market data, the tendency must be resisted to treat the knowledge problem as wholly a matter of somehow collecting dispersed knowledge, as if it were shells on a beach waiting to be picked up. Knowledge has no existence apart from the minds classifying it, and knowledge is a significant only because individuals attach usefulness to it. "Objective" market data are surface-level manifestations of knowledge subjectively held by individuals. The content of such knowledge not only includes perceptions about existing market data and "practical" knowledge, but also theories of causal relationships, anticipations of the future, and an unspecifiable body of inarticulated or tacit knowledge.[1]

From a subjectivist economics perspective, individuals utilize this knowledge to formulate plans. Such plans arise from complex mental processes that draw on knowledge available only to those individuals. Thus, the same set of "objective" data may be interpreted differently and formulated into plans based on the unique substrata of knowledge inhering in each individual. This means that an intrinsic aspect of the knowledge problem is the diversity of individual plans and the creation of novelty. Although individuals act purposively to attain their ends, the system itself generates outcomes that cannot be specified a priori. The system is end-independent.

Conceiving of the market order as open-ended and nondeterministic draws attention to its evolutionary character. Since knowledge

[1]See Polanyi (1966).

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drives the system, the path of the system through time will involve the creation, utilization, and destruction of knowledge. What was relevant knowledge yesterday will be made useless tomorrow by newly created and discovered knowledge. The dynamic pattern of the spontaneous market order is characterized by Weimer (1983, p. 25) to involve "regulatory principles of change":

> [I]t seems to be informative to consider the evolution of spontaneous orders as an essential tension between three sets of principles that regulate change: creativity or productivity, rhythm, and opponent process regulation. The interaction of these principles creates an essential tension between the previous form or organization, the ongoing state, and changes that may occur. This tension between tradition and innovation, stability and change, is an inherent aspect of evolving cosmic structures.

The novelty created by spontaneous orders stems from the infinite applicability of general rules of conduct to particular circumstances.[2] Rules, as opposed to directives, are generative principles that limit the range of permitted action but do not specify a particular kind of action or result. Thus, while the rules that guide action are finite, the diversity they permit is not.

The discussion thus far has focused on the dispersed, subjective, and evolutionary character of knowledge. But is it possible to gain and utilize such knowledge, and what is the status of the knowledge that is acquired?

Although individuals clearly have access to certain kinds of particulate knowledge, they are precluded from detailed knowledge of the system's structure and the plans of others. The coordination of diverse plans, given the inevitability of ignorance, is, however, attributable to the economy of knowledge necessary for the market's operation. By decentralizing control, the market makes possible the effective use of dispersed knowledge and thus widens "the span of our utilization of resources beyond the span of the control of any one mind" (Hayek 1948, p. 88).

Constraints on what can be known also apply to the decision-making units of a monetary regime. Like those of the economic system, such units do not have direct access to dispersed knowledge or to detailed structural knowledge of the economy. The "objective" data generated by the market is available (at a positive cost), but it does not provide insight into the specific individual plans and novel outcomes that arise.

[2]See Hayek (1967).

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The knowledge problem confronting regimes is regime-specific because they differ in their degree of centralization and in their objectives. For a centralized monetary regime, such as the Fed, the existence of data in the form generated by the market (individual prices and quantities) has little use. Rather, the collected data must be organized in a way that is compatible with the decision-making process and activity the regime undertakes. Specifically, data must be statistically aggregated or indexed. This follows because a centralized regime's concern (and presumed responsibility) is not associated with isolated market phenomena, but, instead, is directed to the broader contours of economic activity at the sectoral or macroeconomic level.

In contrast, a monetary regime composed of competing firms, such as Hayek's, has no identifiable or direct concern with macroeconomic outcomes. Rather, the firms' objectives are to produce products and services that generate profits. For example, their need to construct aggregate indices of economic activity, if present at all, is plainly secondary to the acquisition and utilization of knowledge proximate to their situation. The kind of knowledge that competitive money issuing firms require, therefore, is quantitatively and qualitatively different from that of a centralized regime. While constraints on knowledge apply to both, the nature of those constraints differs with respect to the regime's organization and charge.

III. The Current and Monetarist Monetary Regimes

In this section, I examine two monetary regimes based on government (or central bank) provision of base money. I assume the regimes differ only in the range of discretion allowed the central bank in issuing base money.[3] In the current regime this range is bounded in the sense that the Fed formulates and implements "sound monetary policy" consistent with broad policy objectives relating to inflation, unemployment, and balance of payments equilibrium.[4] In the monetarist regime the range is specified as a particular (monetary aggregate) growth rate rule.

[3]Obviously, other important features, such as regulatory functions, methods of reserve accounting, discount rate setting, and foreign exchange intervention might also differ across regimes.

[4]The centralization of Fed power and the identification of long-term monetary policy goals evolved over several decades. The original purpose of the Federal Reserve Act of 1913 was to provide an elastic currency and discount commercial paper, and to improve bank supervision. Following World War II, the Employment Act of 1946 and the Humphrey-Hawkins Act of 1978 established the legislative framework for monetary policy.

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The Current Monetary Regime

As a consequence of the broad range of discretion Congress allows, the Fed is obliged to formulate and implement monetary policy. Notwithstanding the problem of assigning priorities to potentially competing long-term policy goals,[5] at both the formulation and execution stages the knowledge problem arises in important ways. Critics of the Fed, spanning the gamut of different schools, have argued that the Fed has not consistently or adequately fulfilled its charge to stabilize the economy, and may have actually destabilized the economy. I will argue that the knowledge problem is the root difficulty. The problem for policymakers is to formulate policy for a nonstatic, changing economy. The key point is that the kind of knowledge the Fed would need to formulate and implement optimal policy is not available. In the market, knowledge is dispersed and subjective; it exists as particulate data and as plans in the minds of individuals. Knowledge is neither centralized nor exogenously provided, but is produced anew by the continuous activity of interacting individuals.

In general, the Fed's policy process involves the use of such tools as open market operations and the discount rate to effect changes in various "operating targets" (a short-term interest rate, such as the federal funds rate, or a reserve aggregate, such as nonborrowed reserves). The operating targets, typically assumed to be capable of tight control by the Fed, are then linked to "intermediate targets" (such as M1 and M2), which, in turn, are thought to have a systematic relation to the long-run policy goals.

In this stylized overview of the Fed's approach to monetary policy, the knowledge problem intrudes at each turn. My focus here is twofold: on the collection, interpretation, and analysis of data to assess and forecast the past and future state of the economy, and, second, on the selection of an operating target and procedure to implement monetary policy.

Within this framework, the Fed's approach to the formulation of policy involves filtering a wide range of real and monetary variables to produce a forecast of the economy's performance up to one year in the future. Given the desired objectives of monetary policy, a

[5]The literature on Fed behavior often specifies a central bank utility function containing a vector of policy goals. The problem is to maximize the function (or, alternatively, to minimize deviations of desired and actual outcomes) subject to various constraints. See, for example, Lombra and Torto (1976). This approach, however, cannot specify the weights of the Fed's policy goals or claim the weights are constant over time. Public choice approaches to Fed behavior, moreover, have suggested that a more completely specified utility function should include arguments related to profits, prestige, and power. See, for example, Toma (1982) and Shughart and Tollison (1983).

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growth rate of a monetary aggregate (M1 or M2) is selected that minimizes the deviation between the forecasted and desired values of the policy goals. The second stage of the Fed's approach involves the selection of the operating target and procedures to attain the desired growth rate of the monetary aggregate.

At each Federal Open Market Committee (FOMC) meeting staff economists review the economy's recent performance. Drawing on aggregated and sectoral data for real and financial variables, an overall picture of the economy is constructed. This picture, however, is substantially built on data that are known only with a considerable lag. While some indicators of economic activity, especially those related to financial markets, are available quickly, those that pertain to real activity are generally available only with a one quarter or greater lag. As a result, the picture of the economy that can be constructed refers to the economy as it existed in the past.

Suppose, for example, that the Fed chooses a monetary aggregate target (M*). In a simple income-expenditure model, this selection gives an LM (money market equilibrium) schedule in interest rate and income space, given money demand. Now, assume "the" interest rate is observed to rise. The question that will confront policymakers is: What has happened? If money demand has increased (given M*), the rise in the interest rate will be associated with a fall in income. Alternatively, if autonomous spending, say investment expenditures, has increased, the rise in the interest rate will be associated with an increase in income. The appropriate (discretionary) policy response in the former case might be to increase the nominal stock of base money. The problem, however, is that the information necessary to make that inference will not become available without a substantial lag. If the source of change is not correctly identified, the policy response itself will be inappropriate.

The staff economists of the Fed also prepare for the FOMC forecasts of the economy derived from a large macroeconometric model. Such models sometimes perform reasonably well over the near term, but their predictive accuracy, especially for real variables, starts to fall off sharply beyond two quarters or when their structural parameters—referring ultimately to individuals' behavior—change or become unstable. The knowledge problem enters here because detailed structural knowledge of the economy is beyond the capability of models. Although the Fed's econometric model might provide reasonably accurate forecasts for an economy in which the future did not diverge greatly from the past, this is not the relevant context to assess discretionary policy.[6]

[6]A detailed study of staff projections contained in the Greenbook (nonfinancial) and

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The kinds of difficulties encountered in preparing macroeconometric forecasts also arise in the procedures used to reach the desired intermediate target.[7] Since the mid-1970s, the Fed has devoted increased attention to achieving a specified growth-rate range of a monetary aggregate. To implement this policy objective, the Fed employs certain operating procedures. Let us assume, therefore, that the FOMC has decided on a growth rate of M1 equal to M*. According to the "demand approach," the Fed estimates a money demand function using the targeted growth rate of the money stock and a forecasted value for income (Y^e). The resulting equation is then solved for the equilibrium rate of interest (i*) consistent with M* and Y^e. Over the relevant policy horizon, the Fed adds (or subtracts) reserves necessary to hit i*.

Alternatively, the "supply approach" uses the money multiplier model to determine the change in reserves consistent with achieving M*. Here, the estimated value of the money multiplier is used to solve for desired reserves, given M*.[8]

Both procedures are designed to achieve tighter control over a monetary aggregate target and have figured prominently in Fed policy during the past decade.[9] Yet, each procedure suffers drawbacks that can confound the intentions of policymakers. For the "demand approach," the estimated demand function for money may be subject

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Bluebook (financial) during the period 1970–73 is found in Lombra and Moran (1980). Among the many useful insights into the policymaking process uncovered by Lombra and Moran is the systematic underestimation of inflation by the staff. Nevertheless, they concluded that the Fed staff did about as well as other forecasters.

[7]I ignore the controversy of which intermediate target is "optimal." Within the framework of a stochastic IS-LM model Poole (1970) has shown that the choice depends on the relative instabilities of the IS and LM schedules.

[8]The "supply approach" discussed here is a convenient way to describe the formulation of monetary policy. It should be noted, however, that the (nonborrowed) reserves approach that the Fed adopted in October 1979 differs with the "supply approach" at the empirical and operational level. Specifically, in money multiplier models the Fed exercises control by altering the quantity of reserves. As Lombra (1980, p. 283) notes, however, in the Fed's view the "system is equilibrated through the movement of interest rates which, through their effect on bank revenues and costs, determine banks' desired asset and liability positions." For *analytical* purposes, nevertheless, these two mechanisms can be treated as compatible.

[9]Ostensibly, the "supply approach" replaced the "demand approach" in 1979. Whether this constituted a "new regime," as much of the literature suggests, is doubtful. Above all, I would argue that Fed behavior is fundamentally "flexible." Narrow characterizations are likely to be misleading or relevant only over fairly short policy horizons. The operating procedures adopted in 1979 actually widened the acceptable range of volatility in the federal funds rate. In 1982 the Fed narrowed this range and also placed more emphasis on M2.

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to various shocks, specification error, and parameter instability.[10] If so, the Fed's response of supplying reserves to achieve a certain level of the desired interest rate will systematically over- or undersupply reserves during the policy period and, hence, generate undesired deviations in money growth. Since weekly and monthly fluctuations in money stock measures may arise irrespective of monetary policy, the Fed is unable to ascertain in the near term if those money stock figures stem from technical problems in its procedures or "white noise." As a result, symptoms of a problem in the procedures appear with a time-lag.[11] In the meantime, money growth is tied to the targeted interest rate.

The "supply approach," on the other hand, requires reasonably accurate forecasts of the money multiplier over the relevant policy horizon. If the multiplier is predictable, controlling the money stock simply requires the Fed to control reserves. Empirical studies by Johannes and Rasche (1979) and Balbach (1981) find that variations in the multiplier tend to even out on a quarterly or annual basis. The reduced-form models that underpin multiplier estimates, however, abstract from the short-run dynamics of bank and public behavior, thus obfuscating the role of interest rates. Since the Fed views the impact on the money stock of changes in reserves as occurring through the movement of interest rates, the multiplier approach is uninformative with respect to the linkages involved in short-run monetary control.

Critics of the multiplier approach point to the "large" annualized monthly variations in the multiplier that, given tight control of reserves, increase the amplitude of interest rate fluctuations.[12] The destabilizing effects of such swings on financial markets cannot be discounted any more than the reaction of the Fed to modify those swings. In the context of a discretionary monetary regime the long-run multiplier predictability is unhelpful without a supporting theory of Fed behav-

[10]The literature on these issues is vast. Goldfeld's (1976) finding that conventional money demand functions seriously underpredicted money demand after 1974 led to a search for the "missing money." The apparent instability of money demand has been attributed to various sources, including regulatory change, financial innovation, and money supply endogeneity. A useful survey is found in Judd and Scadding (1982).

[11]Even if targeted money growth is outside the desired quarterly range, the Fed's corrective steps may be to take the past growth rate as given and attempt to hit the targeted range over the next quarter. This racheting phenomenon or "base drift" seems to have existed during the 1970s, as noted by Lombra and Torto (1976).

[12]Lombra and Kaufman (1985) point out that during the period 1979–82 the Fed's "supply approach" may have reflected a damage-control mechanism in that shocks affected both quantities and rates. Under the "demand approach" only quantity would be affected.

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ior, especially as it relates to short-run monetary control. Lindsey (1983), for example, provides evidence for 1979–81 in which variations in nonborrowed reserves are strongly and negatively correlated with monthly variations in the multiplier.

Since the data available to policymakers are necessarily *ex post* and aggregated, they refer to outcomes of the market process that may not be relevant for current and future plans. The data do not reveal decisions or plans individuals will embark on. If the study of unintended consequences of purposeful activity is the central problem of economic inquiry, recourse to historical data provides an ambiguous, if not misleading, basis for inferring novelty in economic activity. Moreover, the rendering of collected data into broad aggregates represents formalist constructions that are disembodied from the plans and actions of individuals. The market generates prices and quantities, but not, for example, a price level or a homogenous output. The treatment of such aggregates as independent entities neglects the underlying and implicit market processes that they allege to explain and results in the loss of detailed market-generated information.

The purview of the Fed should always be future-oriented. In particular, it must form judgments of the likely path of the economy without policy, and then devise a program to steer the system toward a set of desired outcomes. Here, finally, the knowledge problem intrudes because the future path of the economy can be only conjectured. As we have seen, forecasts of key economic variables must be generated to set the stage for policy implementation. But the problems here can be severe. To forecast accurately the future path of the economy (and hence justify any particular policy), policymakers require detailed knowledge of the economy's structure. The dispersion of knowledge, its inherent subjectivity, and the prospect of novelty suggest, however, a set of constraints that will prevent policymakers from consistently meeting this requirement.

A Monetarist Monetary Regime

Some years ago, Milton Friedman (1960) suggested constraining the Fed to adhere to a fixed monetary growth rule. In his "Statement on the Conduct of Monetary Policy," Friedman (1976, p. 559) argued:

> The ultimate target should be a rate of growth in M2 of roughly 3 to 5 percent a year. That would roughly match the rate of growth in our productive potential. Given the highly stable velocity of M2 over more than a decade, it would be consistent with roughly stable prices.

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The objective of the monetarist fixed, stable growth rule is to remove discretion from policymaking and, hence, policy activism as an independent source of instability. In addition to historical evidence (see, for example, Friedman and Schwartz 1963) monetarists make a series of theoretical arguments supporting this point of view.[13] *Inter alia,* these arguments include the dynamic stability of the economic system, the long-run neutrality of changes in money, and the stability of money demand. In terms of policy, monetarism emphasizes the uncertain environment in which activist monetary policymakers are forced to operate and the timing problems associated with possibly long and variable lags in the economic system.

The monetarist point of view recognizes implicitly the informational constraints confronting policymakers. Hence "optimal" policy—stabilizing the path of the economy and offsetting cyclical fluctuations—is a chimera because it would require knowledge that policymakers do not and cannot have. As Brunner (1983, p. 25) observes:

> Nevertheless, many Keynesians implicitly, and sometimes quite explicitly, assert that they possess knowledge about the position and movements of these [IS and LM] curves. Indeed, they proclaim to possess specific knowledge about the mix of fiscal and monetary policies that at any moment would guide the curves to the "full employment" equilibrium.

Sensitivity to knowledge constraints also appears to underpin the monetarist preference for "reduced-form" econometric models as opposed to large, structural Keynesian models. According to monetarism, the economy is too complex to be captured adequately, even in detailed econometric models. Moreover, if the transmission mechanism of monetary impulses involves relative price and portfolio effects across a broad spectrum of assets, as monetarists contend, then modeling only a small number of channels would bias large structural models against picking up the ubiquitous effects of monetary changes.

The monetarist growth rule, therefore, might be a plausible approach to monetary policy in a world of uncertainty. If the system in the long-run attains its natural rate of unemployment, the only outstanding policy question from the monetarist perspective is: at what rate of inflation? The monetarist answer to this question involves a monetary quantity rule for a price level (or rate) objective. The automaticity of the rule is, according to monetarism, the proximate requirement to achieve overall monetary and systemic stability. But would

[13]Mayer (1975) provides a useful overview of monetarism.

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the adoption of a quantity rule solve monetary problems? Would it dispense with policy decision making?[14] And would it, in short, be capable of dealing effectively with the knowledge problem?

To examine this question, let us suppose that the Fed is forced to adopt a growth rate rule.[15] Further, assume that the Fed's self-imposed impediments to monetary control, such as lagged reserve accounting, nonuniform reserve requirements, and a nonmarket-related discount rate, are removed.[16] In this setting, a once-for-all and publicly announced FOMC directive would specify that the trading desk purchase some fixed amount of securities at regular intervals.[17]

The apparent automaticity of a monetarist regime, however, does not mean that decision making by the Fed is unnecessary. First, a determination must be made as to which monetary aggregate should serve as the operating target. Presumably, it would be one which the Fed could control tightly and which bore a systematic relation to the relevant intermediate target. The preferred monetarist aggregate is the monetary base, controlled by asset-side manipulation of the Fed's balance sheet. Once selected, the operating target's growth rate would

[14]This is the same question Will Mason (1984, p. 1) raises in the context of a gold standard: "The gold standard failed because it became mistaken for an automatic mechanism that would solve our monetary problems for us."

[15]According to Friedman (1982), a more realistic alternative is to place the Fed under the control of the Treasury Department or Congress. It is not clear why shifting control to another agency would ensure adherence to a growth rate rule in the absence of a constitutional constraint.

[16]Greater uniformity of reserve requirements was specified in the Monetary Control Act of 1980, and a form of contemporaneous reserve accounting was reintroduced in 1984.

[17]Currently, the FOMC's directive becomes publicly available only after a lag of several weeks. This practice was unsuccessfully challenged in a civil action in 1975. The Fed's position is that immediate release of the directive would cause financial markets to overreact, leading to increased volatility of interest rates and speculative profits for astute "Fed watchers" (see Burns 1978, especially pp. 392–93). Volcker (1984, p. 3) also argues that "one danger in immediate release of the directive is that certain assumptions might be made that we are committed to certain operations that are, in fact, dependent on future events, and these interpretations and expectations would tend to diminish our needed operational flexibility." On the surface, the Fed's position is inconsistent with the efficient-markets hypothesis and reduces to the claim that less publicly available information is preferable to more. Michael Dotsey (1984) has developed a model which suggests that the variance of the federal funds rate is smaller when the FOMC delays release of the directive. As he points out, however, this may augment the Fed's utility if smoothing interest rates is an objective but increase financial institutions' costs, given that they have a strong incentive to uncover the direction of monetary policy. Also see O'Brien (1981). Under a monetarist regime, the issue of the directive's delayed release does not arise since the directive would not change and the Fed would not act to smooth interest rates.

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be hooked into a money multiplier to give the growth path of a money stock intermediate target (see Friedman 1982).

I suggested earlier that the money multiplier approach may involve certain difficulties.[18] While these mainly serve to highlight potentially important issues in *implementing* a monetarist growth rule, the introduction of dynamism into the economy, however, sets the stage for a more fundamental problem, namely, which money stock should the Fed target? My claim is that the Fed does not determine what money is, but discovers *ex post* what individuals use for money.[19] In the context of a monetary growth rule, the presumed (policy) exogeneity of money exists only to the extent that the market permits. Because the particular kinds of financial assets that may become money result from entrepreneurial activity on the market, no one, including the Fed, can know beforehand what they might be. While the government may legalize different kinds of media of exchange and the Fed may incorporate their quantity into a measure of the money stock, only through a market process is money legitimated. Even if the Fed is able to control a particular collection of assets called money, say M1, there is no guarantee that the measure is the appropriate one for controlling nominal GNP.

These considerations suggest an interesting dilemma for monetarists. It is widely agreed that month-to-month variations in the measured money stock contain a substantial amount of randomness. Tight control of the money stock target is, therefore, not possible in the short run. Monetarists, however, do claim that on a quarterly or annual basis, these random deviations even out and permit a monetary rule to achieve its targeted range. As a result, it is argued that in the long run the Fed is in a position to control the money stock and researchers can treat the money stock as an exogenous (policy determined) variable.

This latter claim might be correct if the collection of assets used to mediate exchanges were unchanged. To the extent, however, that

[18]In figures reported by Rasche (1982) forecasts of the base multiplier show sizable monthly errors but considerably smaller yearly ones, suggesting that the errors tend to "average out" over time. Such results would appear to provide a strong basis for a growth rate rule. However, the large monthly forecast errors will tend to generate more volatile interest rates (see Lombra and Struble 1979; Auerbach 1982). Second, Rasche uses a time series model to generate money multiplier forecasts. The significant feature of such models is that they require no explicit behavioral assumptions; they are purely *ex post,* historical, nontheoretic.

[19]See Menger (1892). Monetarists identify the appropriate money stock to target on the basis of its ability to track nominal GNP. See, for example, Rasche (1982) and Cagan (1982). The empirical definition of money, however, confuses the concept of money with its measurement. On this, see Mason (1976).

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financial market innovations arise, that presumption is cast into doubt and suggests that the long-run money stock exogeneity and controllability assumption is contingent upon the dynamics of the market process. The fact that the measurement of the aggregates has undergone periodic revision during the past several years highlights the difficulties facing policymakers in a rapidly changing environment.[20]

The desire of financial institutions to circumvent regulations by issuing new kinds of liabilities surely has played a significant role in this process,[21] as has the recent trend toward deregulation. The prospect exists that financial innovation will gradually wind down, although recent experience suggests that the opposite may be more nearly the case. Indeed, a case can probably be made that the major task confronting Congress, the Fed, FDIC, and the comptroller of the currency is whether the legislature and regulators will *ratify* changes in the financial sector. In any event, the evolution of financial institutions is likely to continue to surprise policymakers and theorists alike.

Recent innovation in the financial sector illustrates the novelty inherent in a complex system like the market. When individuals perceive new institutional arrangements they are motivated to exploit opportunities and to do things differently. In so doing, not only do they take advantage of their proximity to particulate knowledge, but they also generate new information and hence unintentionally contribute to the formation of new social institutions and structures. In those activities that are closely related to money and monetary institutions, special difficulties are generated for policymakers. Although I suggested earlier that such problems may be particularly pressing for discretionary policymakers, they also arise when rules are imposed to constrain the range of discretion.

In a monetarist regime, the need to deal with the dynamic properties of the financial system may require periodic changes in the

[20]In 1982 the FOMC narrowed the targeted range of fluctuation in the federal funds rate and placed greater emphasis on M2 (rather than M1). According to the Fed this was necessitated by the uncertainty surrounding the introduction of new financial assets. Volcker (1983, p. 38) observes: "Deposit flows in response to the advent of the money market deposit and super NOW accounts have been massive. As expected, these inflows have had a major impact on the growth of some of the aggregates—particularly M2. . . . The range of uncertainty on these points is substantial. . . ." Also, Lyle Gramley (1982, p. 395) notes: "Financial innovation in the United States has had important and far-reaching ramifications. It has raised questions about the appropriate definition [measurement?] of money, the precision of the Federal Reserve's control over the money stock, the meaning of changes in money balances, and the mechanism by which monetary policy affects economic activity."

[21]See Kane (1977).

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monetary rule. Even if the Fed were able to control tightly a particular money stock measure, there is no a priori assurance that the aggregate would contemporaneously reflect the appropriate collection of financial assets used as money in a dynamic economy. The uncertainty surrounding the nature, significance, and transience of financial sector innovation would measurably complicate adherence to an established monetary rule. Because financial sector innovation is an ongoing, open-ended process, the knowledge policymakers would need does not exist. Thus, in a dynamic financial environment the knowledge problem effectively drives a wedge between the intentions of policymakers and the undesigned process of the market.

IV. A Regime of Competing Currencies

The monetary regimes discussed in section III are based on government (or Fed) provision of base money. In this section, I consider a denationalized regime in which private firms issue non-convertible fiduciary money, as proposed by Hayek (1978).

As envisioned by Hayek, the denationalized monetary regime's essential characteristics would include the following: (1) private bank issuance of liabilities (non-interest bearing notes and demand deposits) denominated in a unit with a registered trademark and redeemable at a contractually fixed rate with another currency, which Hayek (1978, p. 42) suggests could be Swiss francs, dollars, or D-marks; (2) each bank would announce its intention to keep the purchasing power of its currency constant by adjusting the stock of its currency; (3) the purchasing power of each bank's currency would be defined in terms of a standard composed of a basket of commodities.

Hayek suggests that since individuals' dominant preference is for currencies of stable value, a competitive selection process will result in the survival of those currencies that maintain their value in terms of the commodity basket. According to Hayek, the mechanism that ensures this outcome is the operation of an organized currency exchange market. In this market, movements in exchange rates between currencies would provide signals to the issuing banks to contract (or expand) the stock of their currencies. Thus, if bank A overissued its currency, the value of currency A in terms of other currencies would fall. To prevent further depreciation and to ensure the preservation of the public's desire to hold its currency, bank A would have to take steps to contract the stock of its currency. If the bank views its brand-name currency as a capital asset, the incentive, as Klein (1974) suggests, is for the bank not to overissue. Generalizing

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this result implies that the supplies of currencies by private firms will be bounded.[22]

In terms of the knowledge problem, Hayek's proposed regime appears to offer several attractive features not evident in those considered in section III of this paper. Perhaps the most obvious is the absence of the need for a policymaking role by the Fed. As discussed earlier, the Fed's obligation to supply base money carries the corresponding charge of formulating and implementing monetary policy. The various manifestations of the knowledge problem inherent in that charge do not arise under Hayek's proposal because government money would be just another currency subject to the same competitive constraints as all other currencies. Fed "monetary policy" (in the usual sense of that term) would be irrelevant.[23]

Currency issuing firms in a Hayekian regime pursue "monetary policy" only in the sense that they contract (or expand) their balance sheets to maintain a stable value of their currencies in terms of the commodity basket. Unlike a centralized monetary authority, such firms have no need to construct models of the economy to determine appropriate policy. Their purview, moreover, is unrelated to the path and levels of aggregates in the economy. As a result, they are neither burdened with the task nor have the incentive to collect particulate information on a scale approaching that of a centralized monetary authority. Instead, each bank in Hayek's scheme has ready access to the information relevant for its decision making by consulting the currency exchange market. The signals that the currency exchange generate summarize the market's assessment of banks' past (or recent) behavior and presumably provide information useful in guiding their future behavior. This suggests that even though changes in a bank's balance sheet will alter commodity basket prices in terms of its currency, the bank has no special incentive to expend resources to acquire that information. Rather, the bank is able to economize on what it needs to know by referring to the currency exchange market. As Hayek (1978, p. 56) puts it:

> The bank would therefore have to look to the effects of changes in its circulation, not so much directly on the prices of other *commod-*

[22]Girton and Roper (1979, 1981) argue that a competitive system of substitutable (fiduciary) monies will generate the optimum quantity of money. They show that for a costlessly produced money, the real cost of holding it, not its price, will be driven to zero. In their model the equilibrium real rate of return on alternative assets requires banks to offer the same real rate for money balances by paying a positive nominal interest rate or by contracting money to generate an equivalent rate of deflation.

[23]Girton and Roper (1981, p. 27) argue that "a money supplied at a fixed rate of growth would be driven from circulation if the public is offered substitutable convertible currencies."

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> *ities*, but on the rates of exchange with the *currencies* against which they are chiefly traded.

In a regime of competing currencies, the problem of inherent constraints on knowledge is not "solved" in the same sense as raising the thermostat solves the problem of being cold. The sensation of feeling cold disappears, but the problem of knowledge does not. The relevant issue, rather, is the extent to which dispersed knowledge is used effectively. In Hayek's monetary regime, an economy of knowledge is achieved because decision making and control are decentralized. The informational efficiencies associated with individuals' access to practical knowledge of "particular circumstances of time and place" (Hayek 1948, p. 80) provide the negative-feedback regulative mechanism essential for the coordination of plans. In the *Denationalisation of Money* Hayek (1978, p. 98) writes:

> Indeed, if . . . the main advantage of the market order is that prices will convey to the acting individuals the relevant information, only the constant observation of the course of current prices of particular commodities can provide information on the direction in which more or less money ought to be spent. [Money] should be part of the self-steering mechanism by which individuals are constantly induced to adjust their activities to circumstances on which they have information only through the abstract signals of prices. It should be a serviceable link in the process that communicates the effects of events never wholly known to anybody and that is required to maintain an order in which the plans of participating persons match.

Although Hayek's proposed regime may seem to deal effectively with aspects of the "knowledge problem," I am not suggesting that it is without potential drawbacks. There is a sense in which Hayek's monetary regime assumes away the possible existence of certain informational problems. If we suppose that several media of exchange circulate within a given locale, individuals would incur increased information and transaction costs.[24] Among the efficiencies associated with the use of money is the decrease in the number of relative prices compared to barter. For a barter system with n commodities, (n/2)(n-1) relative prices exist, while only (n-1) relative prices exist if one commodity serves as money and is traded on every market. As the number of circulating currencies increases, the number of relative prices existing on the market also rises, thus generating increased costs of information.

This difficulty would be diminished, and eventually eliminated, as the number of competing currencies in a locale approached one

[24]See Mundell (1961), Klein (1974).

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and as the circulation area of that currency grew larger. But the reduction in information and transactions costs this implies would expose the system to other difficulties. As the number of competing currencies dwindled, the competitive constraints facing the remaining ones become associated increasingly with potential entrants and decreasingly with actual competitors. If potential entrants face nontrivial start up costs to induce individuals to use their currency, established issuers are situated to exploit their position and reap extra-normal profits by overissuing their currencies. There is a limit pricing problem here that reduces the incentives for issuers to fulfill their announced intention to maintain the value of their currencies within a narrow range.[25]

On the other hand, the existence of entry costs does not give existing issuers *carte blanche* or imply that conditions will favor the establishment of a "super-currency." The notion that the need for currency competition will bring forth currency competition is relevant here as a binding, though unspecifiable, constraint upon established issuers.

A second difficulty may also arise with overlapping currency areas concerning variations in currency exchange rates. If exchange rates fluctuate, people are exposed to capital value losses. The loss may be temporary if the depreciated currency's bank moves to restore its exchange value. However, the possibility exists that to avoid those risks people will shift to other currencies, further destabilizing the value of the depreciated currency. This may be particularly relevant if payments systems use electronic funds transfers, in which deposits can be withdrawn almost instantaneously. Although banks might develop interbank lines of credit to insure their liquidity, those lines may tend to dry up (or become more costly) when they are needed most.[26] In the face of these considerations individuals may reduce their overall risk of capital value loss by diversifying their money holdings. While this reintroduces the problem of currency areas mentioned above, it may also have the desirable effect of maintaining

[25]Vaubel (1977) argues that currency competition will necessarily evolve into currency unification (i.e., nationalized monies) because the production of money is subject to economics of scale and hence involves a natural monopoly. Vaubel's claim assumes that the *quality* of money increases as its domain expands (p. 458). This is true in the sense that information costs fall as the currency area increases. But it may not be true if "quality" is associated with stable purchasing power.

[26]The problem here is that a potential interbank lender may not have adequate information on the status of the balance sheet of the troubled bank. An adverse exchange rate movement in a bank's currency may indicate a serious problem or might be entirely temporary. If the lender assumes the former, credit may be difficult to obtain.

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an underlying demand for several currencies. In this case, a competitive market in money is furthered.[27]

In terms of variations in currency exchange rates, an underlying issue is that the currency exchange market is driven in part by expectations of future exchange rate movements. While no special advantage is gained by postulating "animal spirits," it is well to remember that expectations are ultimately psychological and subjective. Consequently, the meshing of expectations and the dovetailing of plans will not always be smooth or complete. It is plausible to assume that individuals will revise false expectations, but the learning process this involves and the character of reformulated expectations may be difficult to specify. In the absence of a more detailed treatment of expectations, the operation of the currency exchange market is something of a loose joint in Hayek's proposal.

V. Conclusion

The failure of the current monetary regime to achieve consistently stable prices probably explains the increased interest in exploring alternative monetary regimes. Criticisms of the Fed, whether they focus on the details of Fed behavior or attribute monetary problems to the stewards of monetary policy, concern the knowledge problem it faces as an institution. As a result, the agenda established for the Fed may be excessively optimistic and, in the end, unobtainable. Lucas (1980, p. 209) notes, "as an advice-giving profession we are in way over our heads."

The yet untried monetarist proposal may be a plausible regime in that it would alleviate monetary policymakers of some of the difficulties suggested by the knowledge problem. Nevertheless, serious doubts about it arise in a dynamic context. A monetary rule would likely eliminate the possibility of severe inflation, but the problem of financial asset and quasi-money stock endogeneity cannot be dismissed, especially if financial regulations and the monetary growth rule constraints become binding.

A regime of competing currencies along the lines suggested by Hayek offers an interesting alternative to government provision of base money. Implicitly, Hayek's proposal is a critique of having monetary policy at all. For Hayek, Fed monetary policy, by discretion or a growth rule, is macroeconomic "central planning" that fails to achieve the economy of knowledge attributed to market mechanisms. Hayek's proposal is not without difficulties, but their severity is open

[27]Girton and Roper (1981) show that exchange rate instability is reduced as currency substitution increases between competitive, endogenously supplied monies.

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to further question. Since our knowledge of a regime of competing (inconvertible) currencies is largely theoretical, its actual operation remains something of a mystery. In any event, additional theoretical and historical work would be useful. Among the issues that here seem pertinent, the question of Hayek's suggestion for a commodity basket as the standard of value would merit further study, given that convertible (gold) commodity standards have historically emerged as the preferred ones. In this sense, White's (1984a) proposal may be more consistent with what we know about monetary regimes.

Second, Hayek's regime does not specify a role for a lender (or lenders) of last resort. Presumably, such institutions are not inconsistent with Hayek's regime, and there is evidence to suggest that they would emerge in a free banking environment (see White 1984a). Additional study of this function is essential for proposals recommending abolition of government monopolization of money. A useful starting point might be to consider the international interbank loan market.

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THE PROBLEM OF MONETARY CONTROL: ANOTHER VIEWPOINT

Edward J. Green

My comment will focus on the part of Professor Butos' (1986) paper that deals explicitly with the Federal Reserve System. This portion of the paper can be read simply as an analysis of a specific monetary policy regime that the Federal Reserve imposed during the period 1979–82. However, it is clear that Butos views that particular regime as being broadly representative of the policies that the Federal Reserve and other central banks have followed over the course of a substantially longer historical period. Thus, his paper can also be read as a comparison of the institution of central banking with other political and economic institutions that have been recommended for the provision of money. The present comment will focus on this latter, more general, aspect of the paper.

In his paper, Butos proposes answers to three questions that he has implicitly posed. The first of these questions is, what is the appropriate role of a monetary institution? Following Professor F. A. Hayek, Butos suggests that a monetary institution should foster an environment in which nominal prices can effectively aggregate and disseminate the incomplete and dispersed information possessed by individual market agents. The second question is, how do monetary institutions actually operate? Butos' discussion of the Federal Reserve System is consistent with the assumption that there is a good-faith effort to achieve the appropriate goal of informational efficiency that has just been mentioned. The third question is, how does the actual performance of the monetary institution compare with its intended performance? Butos argues that, although it acts in good faith, the Federal Reserve System achieves only limited success in enhancing the informational efficiency of prices.

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One might expect an economist writing in the tradition of Hayek to approach his subject from a substantially different perspective from that of many other economists. The preceding account of Butos' paper should make it clear, though, that his perspective actually is not very different from others'. Virtually all economists would agree that his three questions are the appropriate ones to pose. Virtually all would define the appropriate goal of the monetary institution in terms of optimizing some narrowly economic objective function, although quantities such as the levels of output and employment would be competing candidates to be optimized. (Perhaps it is a tribute to Hayek that the informational efficiency of the price system is now considered to be a narrowly economic objective on a par with these others.) With the notable exception of the public choice school, most economists would probably subscribe to the view that central banks (although not necessarily all public-sector institutions) typically act in good faith to do what they are supposed to do. There would be less agreement with Butos concerning the extent that central banks succeed in their good-faith endeavor, but this is a question about which the economics profession in general is not unanimous.

In this comment, I would like to suggest that another aspect of Hayek's thinking would be relevant to thinking about the questions stated above. In particular, I refer to his work on constitutional theory. In that work, he has emphasized that government should not be viewed as a single optimizing agent, or indeed as an agent that ought to optimize something. Rather, government is a set of evolving institutions that ought to provide a stable environment in which private-sector agents would be able to make intelligent decisions. In the economic sphere, "price stability" is a way of describing such a stable, reliable environment. However, this notion is quite different from the idea that the monetary authority ought to minimize the variance of a time series of price levels. Thus the conception of the monetary authority that I have in mind here is contrary to that embodied in much of contemporary macroeconomic theory where solving such a minimization problem is taken to be the objective of the central bank. (Incidentally, the inappropriateness of this objective is the theme of much of economists' work on indexation.)

Rather, an important component of "price stability" ought to be that the monetary system is reasonably insulated from political interference. Aside from the criticisms that Butos raises regarding a constant money supply growth rule, it is hard to see how such a rule would be an effective insulating device. If Congress were to mandate such a rule, it could just as easily and quickly reverse the mandate when such a reversal would be politically expedient. It may be that,

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in order meaningfully to insulate the price system from political interference, it is necessary to have a bureaucracy to act as a buffer. Its role as such a buffer is one of the important things to understand about the Federal Reserve System.

Of course, there are costs as well as benefits to having buffers, and bureaucracies can be either well or badly designed. Let me mention three observations regarding these issues. First, in order to insulate the monetary system from politically powerful interests and institutions, the monetary authority itself presumably needs to have considerable political power. This suggests that power in the monetary authority may need to be more highly centralized than would be the case if it were really an apolitical, technocratic agency. In particular, it seems naive not to expect the Chairman of the Federal Reserve Board firmly to control the FOMC. Second, it seems inevitable that a monetary authority will allow very strong political pressures to be transmitted in attenuated form to the monetary system. When Congress directs the authority to do something to ameliorate what constituents perceive to be a terrible situation, the Chairman cannot simply argue that his job is to foster long-term price stability and that that is what he is doing. When we look for a politically viable way to insulate the monetary system, then we are looking for a less-than-ideal way to insulate it. Third, the monetary authority will be staffed by human beings who have interests and incentives. Thus, all problems of public-sector bureaucracies that are pointed out by the public choice school will be experienced to some extent by the monetary authority. In 1986, the recognition that political agents are not Plato's guardians should not shock anyone. Rather, it should prompt people to think about the problem of designing monetary institutions in a way that will minimize these problems, subject to the constraint that the authority must retain the substantial political power that is required for its work. In the case of the Federal Reserve System, the division of the monetary authority into regional banks, and the employment of a large staff of academic economists (who owe some allegiance to a set of professional values, as well as to their immediate employer) arguably address these concerns.

The preceding paragraph should be read as an expression of what I do not find completely satisfactory about the way that most macroeconomists of various schools think about the problem of monetary control. Insofar as he deals with the Federal Reserve System, I read Butos' paper as being closer to this mainstream conception than he may realize himself to be. The observations that I have made above are not intended as statements of established fact, but rather as sensible conjectures deserving of further exploration. I hope that both

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macroeconomists and students of political economy will find this program to be attractive.

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INHERENT INSTABILITY IN BANKING: THE FREE BANKING EXPERIENCE

Arthur J. Rolnick and Warren E. Weber

Introduction

Historically, even some of the staunchest proponents of laissez-faire have viewed banking as inherently unstable and so requiring government intervention. According to this view, left to unfettered market forces, banks are prone to periodic runs and failures simply because of unpredictable private decisions about the form in which individuals hold their money.

This view arose not from any explicit theory that points to an inherent problem with a laissez-faire banking system, but from experience with U.S. banking that goes back at least 150 years. In particular, the Free Banking Era (1837–63) is often cited as an example of what would happen if banking were unregulated. It was a period when banks were subject to few restrictions, fewer than any other period in U.S. banking history. And it has often been characterized as chaotic, with many different kinds of paper money, with numerous bank runs and failures, and with substantial losses and inconvenience to holders of bank notes. Some even claim that the U.S. economy would not have grown as robustly as it did late in the 19th century if the free banking system had been left in place (Cagan 1963).

In this paper we reexamine the view that banking is inherently unstable by taking a closer look at the free banking experience. Based on rather extensive empirical evidence recently accumulated on this experience, we find that the problems with free banking were not caused by anything inherent in banking. Rather, we find that the

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problems were caused by economic shocks that caused many banks to fail but did not lead to bank runs or panics.

We proceed as follows. Since many readers may not be familiar with the Free Banking Era, first we briefly discuss how a free bank was regulated and operated and briefly review what happened under this system. Then we discuss the concept of inherent instability in banking by contrasting two common notions of it. One is that banking problems arise because of extrinsic uncertainty; bank creditors randomly decide to withdraw their funds. Enough of these withdrawals can become contagious and lead to a run on the whole system. The other notion is that banking problems arise because of intrinsic uncertainty; local real shocks reduce the value of some banks' assets, and their creditors begin to withdraw funds. Because of asymmetric information about the quality of bank assets generally, these withdrawals can become contagious and lead to a run on the whole system. Next we present evidence from the Free Banking Era on the causes of banking problems and conclude that the free banking experience did not fit either notion of inherent instability. Finally, we examine possible reasons for these findings and discuss their implications for bank regulation.

An Overview of Free Banking

Bank Laws and Operations

Before 1837, all new U.S. banks had to be chartered by a state legislature. Although these charters differed from bank to bank and from state to state, generally they established reserve and capital requirements for a bank and limited the types of loans it could make. In practice, the chartering system was a cumbersome and very political process that severely limited the number of banks opened.

The Free Banking Era derives its name from the free entry provision of the general banking laws passed by many states starting in 1837. (By 1860, a majority of the 33 states in the Union had passed such laws. See Table 1.) Free entry meant that a legislative charter was no longer required for a bank to be established. The free banking laws essentially allowed anyone to open a bank, issue their own currency (bank notes), take deposits, and make loans.

The Free Banking Era was not a period of laissez-faire banking, however, since banks established under the free banking laws were subject to certain restrictions. Most of the free banking laws were patterned on that passed by the New York legislature in 1838 (and amended in 1840). They thus contained its three regulations intended to insure the safety of free bank note issue:

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- Free banks had to deposit designated state bonds with the state banking authority (state auditor or treasurer) as security for all notes issued. (Some states also allowed federal bonds.)
- Free banks had to pay specie (gold or silver) for notes on demand. Failure to redeem even one note meant that the state banking authority would close the bank and sell all of the assets deposited with it to pay off noteholders. Further, in many states, noteholders had preference over other bank creditors in terms of legal claims on the remaining assets of the bank.
- In general, free bank stockholders were liable for bank losses in an amount up to the value of their stock even though free banks were limited liability companies. This *double liability* provision meant that, if a bank failed, someone with, say, $25,000 of free bank stock not only might lose this investment, but also would be liable for an additional $25,000 of personal wealth to cover bank losses (including those on notes).

TABLE 1

STATES WITH AND WITHOUT FREE BANKING LAWS BY 1860

States with Free Banking Laws	Year Law Passed	States without Free Banking Laws
Michigan	1837[a]	Arkansas
Georgia	1838[b]	California
New York	1838	Delaware
Alabama	1849[b]	Kentucky
New Jersey	1850	Maine
Illinois	1851	Maryland
Massachusetts	1851[b]	Mississippi
Ohio	1851	Missouri
Vermont	1851[b]	New Hampshire
Connecticut	1852	North Carolina
Indiana	1852	Oregon
Tennessee	1852[b]	Rhode Island
Wisconsin	1852	South Carolina
Florida	1853[b]	Texas
Louisiana	1853	Virginia
Iowa	1858[b]	
Minnesota	1858	
Pennsylvania	1860[b]	

[a]Michigan prohibited free banking in 1840 and allowed it again in 1857.
[b]According to Rockoff (1975), very little free banking was done under the laws in these states.

SOURCE: Rockoff (1975, pp. 3, 125–30).

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Under these laws, a prototypical free bank would be established and operate as follows. Suppose that a potential banker had $50,000 of capital. To establish a free bank, that person would buy state bonds with this capital and deposit them with the state auditor. In exchange, the person would receive $50,000 of notes that the new bank could issue. Presumably, these notes would get into circulation by being exchanged for other assets (loans, specie, or more state bonds, for example).

The balance sheet of a prototypical free bank would look something like Table 2. This table assumes the free banker exchanged the initial $50,000 of notes for $25,000 of state bonds and $25,000 of loans. These additional $25,000 of bonds were then deposited with the auditor for another $25,000 of notes which were finally exchanged for another $15,000 of loans and $10,000 of specie.

TABLE 2

BALANCE SHEET OF A PROTOTYPICAL FREE BANK

Assets		Liabilities and Capital	
State Bonds	$ 75,000	Liabilities: Notes Outstanding	$ 75,000
Loans	40,000		
Specie	10,000	Capital	50,000
Total	$125,000	Total	$125,000

As Table 2 clearly illustrates, the profitability of free banking was due to the leverage provided by the bank notes. Here the free banker obtained $115,000 of earning assets with only $50,000 of capital.

This example also shows that the double liability provision did not assure the safety of a free bank's notes. Here the value of the bank's assets plus the $50,000 additional liability of stockholders would be insufficient to pay off noteholders if the value of the bank's state bonds and loans fell below $15,000.

Bank Failures

In a previous study (Rolnick and Weber 1983) we presented detailed evidence on the free banking experience of four states: New York, Indiana, Wisconsin, and Minnesota. Our evidence, which was based on state auditor data, indicated that, although free banking in these states had problems, the problems were not as severe as has been thought. These were our major findings:

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- Very few free bank closings involved losses to noteholders; that is, by our definition, very few *failed*.[1] Between 1838 and 1863, 709 free banks operated in the four states and 48 percent of them closed. However, only about one-third of the closings resulted in any losses to noteholders.
- Free bank notes were quite safe. For most years and most states, the expected loss from holding a randomly selected bank note for one year was zero. Further, when noteholders suffered losses, they ranged from an average of about 25 cents on the dollar in New York and Wisconsin to an average between 10 and 15 cents on the dollar in Indiana. (We exclude Minnesota here because we think our earlier loss calculations for that state are far too high. We explain why in Rolnick and Weber 1985.)
- Most of the free banks were not short-lived. Between 1838 and 1863, New York, Wisconsin, and Indiana free banks were in business a mean of 6.3 years. To put this calculation in perspective, note that Wisconsin and Indiana did not pass free banking laws until 1852. (Minnesota, excluded here too, did not pass a free banking law until 1858.)

Inherent Instability in Banking

There is no agreement on a precise definition of *inherent instability in banking*. However, the conventional view is that inherent instability means that bank runs and panics can occur without economy-wide real shocks. There seem to be two general explanations for how this can happen.

One explanation depends on some *extrinsic uncertainty* in the economy causing individuals to randomly change their demand for bank notes relative to specie for apparently irrational reasons (attributed to, for example, sunspots or animal spirits). If the direction of the demand switch is from bank notes to specie, then even good banks (banks with assets greater than liabilities) will have trouble meeting the demand for specie because only a fraction of their notes are backed with perfectly safe assets.[2] This trouble spreads as noteholders begin to worry about other banks, and this contagious effect (the bank panic) leads to widespread bank failures. An explicit model

[1]We define a free bank *failure* as a closing with losses to noteholders because a major intent of the free banking laws was to provide a safe currency. The laws made no attempt to insure depositors or stockholders against risk.

[2]We define a *perfectly safe asset* as an asset with the same price in all possible states of the world. By definition, therefore, perfectly safe assets are also perfectly liquid.

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that incorporates this view of inherent instability is Diamond and Dybvig's (1983).

An alternative, but closely related, explanation for bank runs and panics relies on *intrinsic uncertainty* in the form of local real shocks and on asymmetrically informed noteholders.[3] According to this explanation, a local real shock to the economy causes the value of the assets of some banks to fall below the value of their liabilities and thus causes individuals to want to redeem the notes of these banks. The desire of these noteholders to switch to specie or to notes of other banks is quite rational, and if noteholders have full information no panic or run will result. Since the real shock is local, it does not affect the assets of some banks, so informed noteholders will not withdraw funds from them.

Asymmetrically informed noteholders, however, can turn the local shock into a bank run. If noteholders are ill-informed about the value of bank assets, then they cannot perfectly distinguish the sound banks from the unsound ones. Thus, they interpret the runs at some banks as a signal that other banks may be in trouble. That is, here as in the other explanation, bank runs are contagious because noteholders use the observation of runs at some banks to revise their views about the safety of others.

The following quotation shows that this type of explanation of bank runs corresponds to that of Friedman and Schwartz (1963, p. 308) for the events of 1930:

> A crop of bank failures, particularly in Missouri, Indiana, Illinois, Iowa, Arkansas, and North Carolina, led to widespread attempts to convert demand and time deposits into currency. . . . A contagion of fear spread among depositors, starting from the agricultural areas, which had experienced the heaviest impact of bank failures in the twenties. But such contagion knows no geographical limits.

An important additional aspect of the inherent instability which is attributed to asymmetric information is that the general fear can turn some financially sound banks into insolvent ones. Obviously, the local real shock will cause the value of some assets to fall because some banks will have to liquidate assets. With complete information, depositors with rational expectations would be able to determine the new level of asset prices, and banks with assets sufficient to cover liabilities would not be run. With asymmetric information, however, asset prices can be lower than their full information level because the specie demands of fearful depositors will cause more banks to

[3]A real shock is *local* if it only affects a particular geographic area or a particular class of assets. An *economy-wide* shock affects the entire country or large classes of assets.

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have to liquidate assets. And at these lower asset prices, fewer banks will have assets sufficient to cover liabilities.[4]

Inherent Instability in Free Banking

Here we examine the empirical evidence from the Free Banking Era for its implications about the inherent instability of banking. First we examine whether the problems free banks experienced seem to be traceable to "sunspots" or to local real shocks. Then we examine whether free bank failures were contagious.

Extrinsic versus Intrinsic Uncertainty

To determine whether free bank failures were due to extrinsic or intrinsic uncertainty, we first identify periods when many free bank failures occurred. We restrict our attention to such periods because a cluster of failures would seem to be necessary for inherent instability. Next we attempt to determine whether or not a local real shock occurred before these time periods. If such a local real shock can be identified, then these failures can be assumed to be due to extrinsic uncertainty. Otherwise, the intrinsic uncertainty explanation may be more appropriate.

In a previous study (Rolnick and Weber 1984) we identified 104 free bank failures in New York, Indiana, Wisconsin, and Minnesota, and we obtained reasonably precise closing dates for 96 of these banks. In Table 3 we show these free bank failures grouped by time period. Our previous study found that most (76 of the 96) free bank failures occurred during periods of falling asset prices, as measured by large declines in the prices of either Indiana or Missouri state bonds. The breakdown of these failures by period is reproduced at the top of Table 3. At the bottom of the table are grouped the remaining 20 failures, which occurred during periods of steady or rising bond prices. Since these periods were generally longer than those of price declines, they are subdivided to exclude lengthy intervening periods when no failures occurred.

The results in Table 3 show that 80 of the 96 free bank failures seem to fall into four major clusters. (The remaining 16 failures did not occur in large groups.) Further, we are confident that three of these clusters (a total of 68 of the 80 failures) can be associated with local real shocks:

[4]It is this aspect of the local shock–asymmetric information explanation of bank runs which seems to motivate Friedman and Schwartz's (1963) emphasis on the high percentage of liabilities that many failed banks ultimately paid off after the Great Depression.

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TABLE 3

FREE BANK FAILURES DURING PERIODS OF FALLING AND STABLE OR RISING ASSET PRICES, 1841–61

Periods When Asset Prices Were	Number of Bank Failures in N.Y.	Ind.	Wis.	Minn.	Four States
Falling					
Jan. 1841–April 1842	20	—*	—	—	20
May 1844–July 1846	2	—	—	—	2
July–Dec. 1854	1	11	0	—	12
March–Oct. 1857	1	0	0	—	1
June 1860–June 1861	1	1	37	2	41
Total	25	12	37	2	76
Stable or Rising					
May 1842–April 1844	3	—	—	—	3
Dec. 1847	1	—	—	—	1
Oct. 1851	2	—	—	—	2
Jan. 1853–June 1854	2	1	0	—	3
Jan. 1855–June 1856	0	3	0	—	3
Jan.–Dec. 1858	1	0	0	0	1
June–Sept. 1859	0	0	0	7	7
Total	9	4	0	7	20
All Periods	34	16	37	9	96

*A dash (—) indicates that the state did not have a free banking law during the particular period.

SOURCE: Rolnick and Weber (1984).

- *January 1841–April 1842, when 20 banks failed in New York.* The local real shock here was the possibility, which arose as early as 1839, that some states would default on their debts. In fact, Florida, Mississippi, Arkansas, and Indiana defaulted in 1841, followed by Illinois, Maryland, Michigan, Pennsylvania, and Louisiana in 1842.
- *June–September 1859, when 7 banks failed in Minnesota.* The local real shock here was the suspension of construction on Minnesota's railroads in the late spring of 1859. This caused a drop in the price of Minnesota 7s (the so-called railroad bonds) which backed the notes of several Minnesota free banks. We have determined that the failure of at least 5 Minnesota free banks was related to the suspension of railroad construction (Rolnick and Weber 1985).

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- *June 1860–June 1861, when 37 banks failed in Wisconsin and 4 more failed in the other three states.* The real shock here was obviously the onset of the Civil War. The shock can be considered local in the sense that the prices of Southern state bonds were affected more than those of Northern state bonds.

One cluster of failures we have not yet been able to definitely associate with a real shock: the July–December 1854 group of 11 failures in Indiana and one failure in New York.[5] These failures may have been caused by extrinsic uncertainty. Nonetheless, of the free bank failures that occurred in clusters, 85 percent (68 of 80) seem consistent with an intrinsic uncertainty explanation of their cause.

Contagion

Either view of inherent instability in banking requires that bank failures somehow be contagious. That is, for a banking system to be inherently unstable, a run on one or more banks and their subsequent failure must lead to the failure of other banks. We test for evidence of contagion by determining whether failures in one state were followed by failures in other states. This test is suggested by Friedman and Schwartz's (1963, p. 308) view that "contagion knows no geographical limits." (Some evidence on intrastate contagion is given in footnote 7.)

The clusters of bank failures just discussed show that free bank failures were quite localized. However, only three of the four clusters can provide evidence for our test of contagion. Of our four sample states, only New York allowed free banking before 1852. So only post-1852 clusters are useful here. None of these three clusters provide evidence that bank failures are contagious. Specifically,

- Between July and December 1854, 11 banks failed in Indiana. This is almost a quarter of the 46 free banks operating in that state in July 1854, which might indicate that bank failures spread through Indiana. However, they seem to have stopped there. Only one of the 232 free banks operating in New York in September 1854 and none of the 19 banks operating in Wisconsin in July 1854 failed during this period.
- Between June and September 1859, over half of Minnesota's free banks failed (7 of the 12 banks that had issued notes by June 1, 1859). However, during this period none of the approximately

[5]Clark Warburton (1962, pp. 75–76) states that "the Bank of England had a serious gold drain in 1853 and the early months of 1854 and raised its discount rate by a series of steps from 2 per cent at the beginning of 1853 to 5½ per cent in May 1854." He also mentions a change in the U.S. balance of trade which occurred in 1854 (p. 76). However, these shocks do not appear sufficient to explain the free bank failures during this period.

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390 free banks operating in New York, Indiana, and Wisconsin failed; failure seems to have been limited to Minnesota.

- Between June 1860 and June 1861, over a third of the free banks operating in Wisconsin in January 1860 failed (37 of the 107 banks). However, only one of the 273 free banks operating in New York in December 1859 and only one of the 17 free banks operating in Indiana in January 1860 failed during this period.[6] Again, free bank failures were virtually confined to one state.

Overall, these three clusters of failures show that free banking had little if any inherent instability because whatever contagion might have existed was limited to specific states. The data do not indicate that free banks experienced the type of widespread contagion that Friedman and Schwartz (1963) observed for 1930.

Why were free bank failures not contagious? That is, why did the bank failures in one state not spread to other states? A possible explanation is that the requirement that free banks keep a reserve of state bonds behind their notes provided some public information about free bank portfolios which helped noteholders distinguish good banks from bad ones when local real shocks occurred.

Consider the cluster of seven free bank failures in Minnesota between June and September 1859. The local real shock here affected only the price of Minnesota 7s (the railroad bonds discussed above), and these bonds backed the notes of five of the banks that failed. There was no reason for the Minnesota failures to spread because the public knew that Minnesota 7s did not back the notes of banks in any other state. In New York, notes were differentiated by whether they were backed by state bonds alone or by state bonds and mortgages, and after 1840 the state allowed only New York or U.S. bonds to back notes. In Indiana and Wisconsin, Minnesota 7s could have backed free bank notes, but publicly available reports by state banking authorities indicate that none did.

Next consider the cluster of 41 free bank failures between June 1860 and June 1861, which occurred mostly in Wisconsin. The local shock here was the onset of the Civil War. The important feature of this shock from the standpoint of noteholder information is that the prices of bonds of Southern states declined far more than the prices of bonds of Northern states. For example, during this period the price of North Carolina 6s declined 56 percent; Missouri 6s, 57 percent; and Virginia 6s, 59 percent. In contrast, the price of Indiana 5s declined only 20 percent. All of these state bonds were traded on the New

[6]In the above cluster discussion, all figures on the total number of operating free banks are from Rolnick and Weber (1983, p. 1088).

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York Stock Exchange, so current market price information was readily available to the public.

That the rash of free bank failures in Wisconsin can be attributed to the decline in Southern bond prices is clear in Table 4. There we present a breakdown of the bonds deposited with the Wisconsin state treasurer as backing for notes as of January 31, 1860, by both the state of origin and whether or not the bank subsequently failed. (The report used to prepare this table included 107 banks, 35 of which subsequently failed.) The table shows that, on average, Wisconsin banks had a high percentage of Southern state bonds backing their notes. In particular, the banks that failed had close to 84 percent of their notes backed by Southern bonds.

Why did the Wisconsin failures not trigger failures in New York and Indiana, the other two states we examined which had free banking systems of any size at the time? We think it did not because the public knew that Southern bonds were a much smaller part of the note backing in these states than in Wisconsin. As noted above, after 1840 New York only allowed New York or U.S. bonds as backing for notes. In Indiana, the state auditor regularly reported the bond backing of notes on a bank-by-bank basis. That auditor reported on November 1, 1859, that only 44 percent of the notes of Indiana's free banks were backed by bonds of Southern states. (In addition, the average ratio of notes issued to the par value of securities deposited to back them was substantially lower in Indiana than in Wisconsin.)[7]

Conclusion

The evidence we have gathered on the Free Banking Era indicates that the problems of this period are not consistent with the view that banking is inherently unstable. Further, we have argued that the reason we did not find evidence of inherent instability is that the state bond requirement, by providing information on bank portfolios

[7]The state bond reserve requirement may have also limited intrastate contagion of free bank failures by providing noteholders with information about bank portfolios. For example, in Minnesota the banks that did not fail and had more than a nominal circulation backed their notes by bonds which held their value—either Minnesota 8s (backed by explicit taxes) or Ohio 6s. Also, in Wisconsin, on average, the banks that failed had a far higher percentage of Southern bonds backing their notes than did the banks that did not fail (Table 4). New York banks follow this pattern, too. We collected data on the bond holdings of the banks in New York during 1841–42. On average, New York banks that failed then backed their notes with a much higher percentage of bonds of states which defaulted on their debt than did banks that did not fail.

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TABLE 4

PAR VALUE OF STATE BONDS DEPOSITED WITH THE STATE TREASURER BY WISCONSIN FREE BANKS, JANUARY 31, 1860

State Bonds	All 107 Banks		35 Banks that Failed in 1860 and 1861		Other 72 Banks	
Southern						
Missouri 6s	$1,974,000	(40.6)[a]	$1,016,000	(48.8)	$ 958,000	(34.5)
Tennessee 6s	738,000	(15.2)	320,000	(15.4)	418,000	(15.0)
North Carolina 6s	409,500	(8.4)	197,000	(9.5)	212,500	(7.6)
Virginia 5s and 6s	233,340	(4.8)	86,600	(4.2)	146,740	(5.3)
Louisiana 5s and 6s	150,500	(3.1)	88,000	(4.2)	62,500	(2.2)
Other Southern	62,000	(1.3)	36,000	(1.7)	26,000	(0.9)
Total	$3,567,340	(73.4)	$1,743,600	(83.8)	$1,823,740	(65.6)
Northern						
Illinois 6s	$ 542,020	(11.1)	$ 132,420	(6.4)	$ 409,600	(14.7)
Ohio 6s	225,000	(4.6)	86,000	(4.1)	139,000	(5.0)
Michigan 6s	185,500	(3.8)	60,000	(2.9)	125,500	(4.5)
Wisconsin 6s	100,000	(2.1)	39,000	(1.9)	61,000	(2.2)
Other Northern	241,500[b]	(5.0)	19,500	(0.9)	222,000[b]	(8.0)
Total	$1,294,020	(26.6)	$ 336,920	(16.2)	$ 957,100	(34.4)
All State Bonds	$4,861,360	(100.0)	$2,080,520	(100.0)	$2,780,840	(100.0)

[a]Numbers in parentheses are percentages of grand total (total for all state bonds).
[b]Includes $77,000 of bonds of Wisconsin railroads.

SOURCE: Wisconsin *Report* (1860).

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to noteholders, prevented the failure of a bank or a group of banks from spreading.[8]

We recognize, however, that this is not the only plausible explanation for our findings. A competing explanation is that unregulated banking is not inherently unstable and that the U.S. free banking system closely resembled a laissez-faire banking environment. In our view, which of these explanations is correct remains an open question. We encourage further study of other banking experiences in different regulatory environments—particularly of the availability of information on the value of bank assets.[9]

Finally, a note of caution for those who argue that regulation is required to prevent banking panics: not all regulations perform this role. Contrasting the experience of the Free Banking Era with that of the National Banking System and the Great Depression makes it clear that regulations which do not provide information to holders of bank demand liabilities will not prevent bank runs and panics. In fact, as Kareken and Wallace (1978) have argued about the Great Depression, regulations which seem to provide information, but really do not, could cause bank panics rather than prevent them.

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[8]Another lightly regulated banking system was the Scottish free banking system (1727–1844) studied by Lawrence White (1984). His evidence on this system is also not consistent with the view that banking is inherently unstable. Again, good noteholder information, in this case provided by the unlimited liability of most Scottish free bankers and good information on their wealth, is a possible explanation (pp. 41–42):

> A Scottish creditor was legally entitled to the debtor's real and heritable estate as well [as the debtor's personal estate]. The amount of real and heritable estate an individual possessed could be easily determined by consulting public records. . . . It . . . enabled members of the public, if they wished, to ascertain the ultimate assets of a local banking partnership. The great security provided to creditors under Scots law helped immunize Scottish banks against any danger of a panic-induced run.

[9]Some might be willing to accept the interpretation that the state bond reserve requirement prevented bank failures from spreading, but would argue that this regulation had the undesirable side effect of increasing the number of free bank failures. They would argue that this regulation, by requiring banks to back their note issue with risky state bonds, led free banks to hold riskier portfolios than they would have without such a regulation. This issue is not addressed by the evidence we have presented. An argument against the proposition that the state bond reserve requirement increased bank failures is that free banks could still have made their notes perfectly safe by purchasing perfectly safe assets with them; that is, the regulation may not have been a binding constraint on free bank behavior (King 1983, p. 147, n. 31).

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REGULATORY SOURCES OF INSTABILITY IN BANKING

Lawrence H. White

In concluding their earlier article of which the present article is partly a reprise, Rolnick and Weber (1983, p. 1090) raised the following question for future research:

> Were the problems with free banks caused by some inherent instability in the banking business, or can they be explained by the laws and regulations that governed free bank activities?

In the present paper Rolnick and Webner (1986) reject the first of these possible explanations for the shortcomings of "free banking" in four antebellum northern states. They find evidence of inherent instability to be lacking in the record of free bank closings in New York, Indiana, Wisconsin, and Minnesota. One would suppose that the authors are therefore inclined to accept at least tentatively the alternative second explanation: the problems of what was called "free banking" in America were in fact due to the particular regulations that state legislators placed on important aspects of banking. Disappointingly, however, Rolnick and Weber do not explore (and barely mention) this avenue of explanation in the present paper. This comment will attempt to fill the gap by suggesting ways in which bank failures and other difficulties of the Free Banking Era may have stemmed from state regulations. Examining hypotheses of this sort will be necessary before economic historians can answer the final question that Rolnick and Weber (1983, p. 1040) asked: "And most importantly, what implications can be drawn from the Free Banking Era about banking deregulation today?"

Bond Collateral Restrictions

As Rolnick and Weber note, the "free banking" laws did not allow laissez faire in banking but instead merely allowed freer entry into

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banking while imposing several sorts of restrictions on bank conduct. The most important sort of restriction was the bond collateral restriction on the issue of bank notes. Hugh Rockoff (1974, p. 141) in fact identifies free banking laws with this restriction: "The term free banking meant something very specific at this time: it meant a banking system with free entry and a bond-secured note issue." Entry was not completely free, as states imposed minimum requirements for initial capitalization (a regulation Rolnick and Weber neglect to mention), but because it is difficult to see how these capitalization requirements could have promoted bank failures they need not concern us here.

Under bond collateral restrictions a would-be banker could issue notes only up to the recognized value (or, in some states, 90 percent of the value) of approved bonds or securities he had lodged with a state regulatory agency. The bonds served as collateral in that they were to be sold off in the event the bank closed or suspended payments, with the proceeds to be applied toward satisfying the claims of noteholders.[1] Though the ostensible aim of the restriction was to reduce the noteholders' exposure to losses, its actual impact may well have been the reverse. It may have acted to increase losses in several ways.

First, in states where the officially recognized value of eligible bonds exceeded the market value, the law may have tempted fraud artists to enter banking. An unscrupulous individual could carry out the following scenario as explained by Rockoff (1974, pp. 145–46): (1) purchase bonds officially worth $1000, say, for only $700 in the market; (2) lodge the bonds with state officials and receive $1000 in state-certified bank notes; (3) purchase $1000 worth of portable assets, provided the notes found takers; and (4) abscond with the assets. The fraudulent issuer's $300 profit represents a corresponding loss to the noteholders, who find the notes redeemable only upon liquidation of the bond collateral, and then only at 70 cents on the dollar. Rolnick and Weber (1982) have themselves contributed toward examining the historical evidence on the applicability of this "wildcat banking" model. They found, examining the same four states considered in the present paper, that only 7 percent of the free banks established (48 out of 709) fit the wildcat model in respect of closing below par less than a year after opening. The extent of true wildcatting may be

[1]The idea of requiring approved collateral for note issues apparently originated with David Ricardo in England and was introduced to the United States by John MacVicker. But the root idea of giving government creditors exclusive privileges in banking dates from the earliest days of banking. See Redlich (1947, p. 191).

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far less even than this figure suggests, however, since the figure does not reveal in how many cases fraud or absconding with assets was the cause of failure. Rolnick and Weber (1982, p. 14) were certainly correct to argue in addition that very many cases of fraudulent banknote issue would have been possible only if the public had been persistently naive. Yet even if the scam was worked only a few times, it is worth pointing out that the bond collateral provision and the corresponding official certification of bank notes may have helped lower public suspicion of notes and led (in the initial cases at least) to the readier acceptance of notes from unfamiliar issuers.

The second and more important way in which the bond collateral restriction may have acted to increase losses was hinted at by Rolnick and Weber (1982) in an earlier piece, but not spelled out explicitly. (The reason that they did not spell it out explicitly is simply that they were addressing a slightly different question. They were looking for the proximate causes of actual free bank failures. I am here seeking to explain why the number of failures may have been greater with a bond collateral restriction than without one.) My hypothesis is the following: bond collateral restrictions forced banks to hold unbalanced asset portfolios overloaded with state bonds. Such portfolios exposed the banks unduly to the risk of declining state bond prices. Rolnick and Weber (1982, p. 16) have indicated that "all free banks had to hold state bonds to back their notes, and note issuing was a major function of free banking. Therefore, state bonds were a major part of many free bank portfolios." In the present paper Rolnick and Weber (1986) cite several failure episodes apparently due to unbalanced bank portfolios, most strikingly the failure of the Minnesota banks overloaded with railroad bonds. It seems unlikely that banks would deliberately so overload themselves absent regulatory distortion of their asset-holding choices.[2] But it remains to be investigated just how much lesser a part of bank portfolios state bonds would have been in the absence of bond collateral requirements.[3] This might be

[2]Unless perhaps members of the public desired to speculate in railroad bonds, with "bank notes" serving as quasi-mutual-fund shares to provide indirect ownership of the bonds in smaller dollar amounts than were available for direct ownership.

[3]It is conceivable that any given bank in a "free banking" state would have desired to hold the quantity of eligible state bonds it did hold even in the absence of bond collateral restrictions. If this were the case their balance sheet data should show that bank generally holding eligible bonds in excess of those it used as collateral for notes. The volume of notes a bank can profitably circulate is definitely limited by the specific demand to hold them (otherwise infinite profits would seem to be available), and it would be the most implausible coincidence for the bank's desired volume of state bonds absent restrictions to be exactly equal to the level required as collateral for the given volume of notes. Banks *not* holding excess eligible bonds can*not* be said to have been effectively unconstrained by the bond collateral restrictions. See White (1984, ch.1) for a discussion of the determination of a bank's note circulation volume.

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investigated by cross-sectional comparison of bond collateral ("free") banks with chartered banks in adjoining states, or even within a single state where dual banking systems operated (e.g., New York). Or it might be investigated by time-series comparison of bank assets in "free banking" states before and after passage of "free banking" laws. The results of these investigations should naturally complement Rolnick and Weber's earlier findings, so I hope that they will not mind my placing this hypothesis on their research agenda.

A third way in which bond collateral restrictions may have precipitated free bank failures is by making the banks susceptible to reserve losses at times when the public desired to hold more currency relative to deposits. Restricted from converting deposits by issuing more bank note currency (on short notice at least), banks would be forced to offer reserve currency, even though the public may have preferred bank notes to specie. This problem clearly arose under the National Banking System which moved the administration of the bond collateral system to the federal level in order to create a market for Civil War bonds. It would be useful to know to what extent the same pattern arose during the Free Banking Era. Reserve drains can precipitate bank failures, as Rolnick and Weber have already explained, by forcing liquidation of bank assets at depressed prices.

Some general policy implications can be drawn from these likely deleterious effects of bond collateral requirements. The first is that government certification of a financial product can be worse than useless if the certification criteria are misconceived, as they were in par valuation states. A market certification agency such as Moody's, Standard and Poor, or one of the "bank note reporter" periodicals of the Free Banking Era, seems less likely to make mistakes of this kind. Rolnick and Weber (1986) make the complementary point that the individual banks themselves have an incentive to provide the portfolio information most useful for forestalling runs. It follows that if the purpose of certification is to make reassuring information available to holders of bank liabilities—Rolnick and Weber (1986) suggest that bond collateral restrictions fulfilled that purpose—then there is no need to make certification mandatory. Under optional certification, banks that think the state's certification worth having can and will bear the costs of meeting the certifying authority's criteria. Other banks can choose other means of building a reputation when those are more efficient. In short there is no public-goods aspect to run-forestalling information.

A second policy implication is that government intervention that goes beyond certification to restrictions on bank portfolio choices will generally harm economic welfare by distorting the banking sys-

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tem. The Congress should have learned this lesson from its bond collateral restrictions under the National Banking Act. (Instead it created the Federal Reserve System.) The lesson has more recently been evident in the problems of the thrift institutions in the 1970s which were restricted to holding mortgages. Thus far Congress has freed the thrifts to hold only—I believe—a mere 10 percent of their portfolios in the form of commercial loans. The Glass-Steagall Act continues to restrict commercial banks from holding bonds and other securities not issued by the federal or state governments, to no sensible end except perhaps artificially favoring placements of government debt. This act not incidentally prevents banks from operating money-market mutual funds, which by their equity (rather than debt) nature are virtually immune from redemption runs.

Unit Banking Restrictions

A second regulatory source of bank failures during the Free Banking Era, I would hypothesize, was the restriction of banks in many states to unit size. The "free banking" laws themselves did not introduce this restriction, but left in place the prohibitions against intrastate branch banking implicit in the earlier chartering systems, and did nothing to allow branch banking across state lines. Like the bond collateral restrictions, unit banking restrictions are likely to have prevented banks from optimally diversifying their portfolios, because bank lending in that day and age was largely limited by transactions costs to borrowers in the neighborhood of the bank. Unit banking tied the solvency of banks too closely to the fortunes of the particular industries that happened to be located in the town in which the bank was authorized to operate. In my own work on 19th-century British banking (White 1984, pp. 44–49) I found a remarkable contrast between the low failure rate of banks in Scotland, where nationwide branch banking was free to develop, and the high failure rate of banks in England, where legislated capitalization restrictions kept branch banking from developing before 1833. I believe a similar failure-rate contrast can be found between Canada, where nationwide branch banking has been permitted, and the United States. A U.S.-Canada contrast is evident not only in 19th-century experience but also notably in the Great Depression and right up to the present.

Unit banking restrictions not only impinge on the asset side of banks' balance sheets, but also on the liability side. A branched bank is less susceptible to random withdrawals or even runs by depositors in any area because it has a broad source of deposits (it can rely on the law of large numbers) and can transfer reserves from surplus to

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deficit branches. A unit bank rests on a narrower and less stable base. Under the National Banking System between the Civil War and the First World War the bond collateral restrictions combined with unit banking led to notorious instability. The stylized case of a panic ran something like this: farmers wanted currency for "crop moving" season. Country banks, bound by bond collateral restrictions, could not convert deposit liabilities into note liabilities. Farmers then took reserve currency instead. The affected country banks drew on their reserves held as deposits at banks in financial centers (under unit banking the country banks could not have their own head offices there). Reserves were thus drained from city banks. Even unaffected country banks, sensing that they might be frozen out if they waited too long, then tried to realize their reserves. In the absence of branch banking networks, the scarce reserves could not be allocated only to the country banks needing them most urgently. Severe reserve stringency ensued, loanable funds became extremely expensive, and many banks failed. It would be useful to know how much of this problem existed already during the Free Banking Era and how much it contributed to bank failures.

In drawing modern policy implications from the instabilities of unit banking it is not necessary to draw analogies between 19th- and 20th-century regulations: the United States still has most of the original restrictions against branch banking. Well-organized federal funds and loan syndication markets can alleviate the effects if used wisely, but cannot eliminate them completely. Many have pointed to Continental Illinois as a bank whose instability can be attributed to the fact that unit banking laws forced it to rely on brokered deposits.

Conclusions

What used to be the standard account of American experience under "free banking" laws drew a picture of chaos bred by open competition. Proregulatory lessons were naturally drawn. Monetary historians are indebted to Rolnick and Weber for major contributions to the careful scholarship that has yielded a substantially revised account of the era, showing the older accounts to be highly misleading.[4] Their present paper convincingly shows the absence of a domino effect in bank failures during the "free banking" era, contrary to myth. It is now more plausible to draw antiregulatory lessons from American "free banking" experience. Perhaps one of these days even the money-and-banking textbooks will reflect the new scholarship.

[4]Other contributors are Rockoff (1974) and King (1983).

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There are two possible ways to draw antiregulatory (or proderegulatory) lessons from the record of the "free banking" era: (1) argue that it shows a deregulated system working well; or (2) argue that it shows a regulated system working poorly on account of its regulations. Rolnick and Weber can be read as taking the first tack. In this comment I have taken the second. But the two approaches are complementary rather than antagonistic. A banking system can work well in aspects strengthened by its freedoms (e.g., open entry) and poorly in aspects hampered by regulations (restricted note issue and branching). This state of affairs is not only conceivable, but seems likely to be exemplified by our picture of the "free banking" era once fully revised. The task of historical revision, of sorting out strengths and weaknesses in actual experience, and properly attributing them to their sources, requires thoughtful historical research. Rolnick and Weber have here given us another valuable installment of exactly that.

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HISTORICAL INSIGHTS INTO THE DEREGULATION OF MONEY AND BANKING

Donald R. Wells and L. S. Scruggs

Introduction

Recent, highly publicized bank failures have inspired some observers to advocate reversal of the financial deregulation begun in 1980; they argue that the excessive risk assumed by unregulated private banks and the high social cost of bank failures (runs) justify reregulation and continued government insurance of deposits (Diamond and Dybvig 1983). Others acknowledge that the Federal Deposit Insurance Corporation (FDIC), with its flat-rate premiums, encourages risk taking by banks, but defend the plan on grounds that its very existence prevents bank runs by the public (Benston 1983, p. 229).

Free-market economists have even supported government monopoly of base money, combined with either a central bank serving as lender-of-last-resort or government deposit insurance, as the most efficient way to reduce risk. Without some guarantee, it is argued, banks and the public would hold larger cash reserves, interest rates would be higher, and real investment would be discouraged (Meltzer 1983, pp. 106–09).

In opposition to the foregoing is the libertarian view that all regulation should be abolished and free banking should be allowed to emerge. This paper presents evidence that crises in banking have resulted not from insufficient regulation, but from excessive governmental restrictions on bank behavior, especially limitations on branching and note issue and mandatory reserve requirements.

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Before establishment of the Federal Reserve, banks faced few obstacles to entry and few restrictions on asset choices or interest rates. Nevertheless, the three major restrictions that did exist, namely, limits on branching, forced holding of reserves, and restraints on the issue of banknotes, were the main causes of instability that led to adoption of deposit insurance.

A completely laissez-faire monetary system without a central bank has been characterized as Pareto-optimal since everyone would be better off; the evils of depression, inflation, and fraud would be minimized in a libertarian world (Timberlake 1978, p. 208).

The Cost of Anti-Branching Restrictions

Unlike most other nations, the United States developed primarily a unit-banking system; the branching that was permitted was not allowed to cross state lines. The two United States Banks (1791–1811 and 1816–36) were exceptions. Even during the so-called free-banking period, from 1836 to 1863, banks were not given total freedom to branch, and as a result their notes often circulated at discounts in foreign states. The National Bank Act of 1864 prohibited branching, except for those state banks that changed to a national charter and already had some intrastate branches.

American economists and banking experts recognized that unit banking was an artificial result of government restrictions and that branching was much safer and more efficient. Westerfield (1933, pp. 744–45), in disputing the need for deposit insurance, argued that branch banking was a proven means to stability and that the resort to government insurance was a demagogic attack on essential branch banking. Dunbar (1904, pp. 195–97) criticized the unit-bank system as responsible for the founding of some state banks, particularly in the plains states, with capital as low as $5,000. He noted that in other countries bank branches served more customers more efficiently, did not require additional boards of directors, could utilize reserves much more effectively, and permitted lower risk by asset diversification. Wernette (1932, pp. 365, 371) revealed that banks in California, then the only true branch-banking state in the country, enjoyed a failure rate of only 5.7 percent between 1920 and 1932, compared to a nationwide average of 25 percent. Furthermore, only two California banks with branches failed, and both of these confined their branching to a single city.

Among present-day banking scholars, Benston (1983, p. 220) regards the anti-branching laws as politically motivated protection for small bankers. He attributes this protectiveness to an irrational fear of size

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and centralization. Ironically, a forced unit-banking structure was responsible for the many failures of small banks in the agricultural states in the 1920s and 1930s; they failed because they could not diversify their loan portfolios the way Canadian banks could (Benston, pp. 224–25). The state-run deposit guarantee systems of the 1908–30 period could not stem the failures of all eight systems (Wells and Scruggs 1984, pp. 5–10).

Part of the irrational fear of branching was the notion that large banks would acquire funds from rural areas and lend them in New York. But the unit-bank system itself moved funds to the New York money market via the correspondent system; rural banks were encouraged by interest payments to keep as much of their reserves as permissible (three-fifths of the required 15 percent of deposits) on deposit with reserve city banks, which in turn kept half of their 25 percent requirement on deposit with New York money market banks. Of course, a branch-banking system may well have moved funds to the money centers, but those funds would have been held within the same institution and could have been quickly diverted to the branch in need. The fear of frozen deposits often caused runs in a unit-bank system, whereas each large branch bank would have held its own reserves, as occurred in other countries (Smith 1936, p. 139).

The Cost of Mandatory Reserve Requirements

With the establishment of the Federal Reserve, member banks were required to hold reserves on deposit at the Fed. It has been generally conceded that these required reserves are the least liquid asset owned by the subject depository institutions. Reserves cannot be used, except at a penalty cost, and, therefore, represent a pure tax on the institution and on all users of institutional money (Benston 1983, p. 219). The benefits of imposing reserve requirements accrue solely to the Fed (and, hence, to the government): They permit the Fed to hold more securities and thus to remit more interest on the debt to the Treasury; they provide the Fed with a large constituency; and they provide justification for expansion of the Fed's subsidized activities (Greenbaum 1983, p. 66). The Fed considers (correctly or not) required reserves necessary for controlling the money supply; hence, they are mandated for the (perceived, at least) convenience of the regulators.

Required reserves did not begin with the Fed, however. The National Bank Act imposed them on deposit liabilities, leaving bank notes to be backed by government bonds. These reserves were to be

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held either in vault cash or as deposits in reserve-city or central-reserve-city banks. Banks in the latter category (New York, Chicago, and St. Louis) had to hold their entire 25 percent reserves in vault cash, which could not be national bank notes, but had to be "lawful money"; i.e., gold, gold certificates, greenbacks, or other Treasury currency. Since these reserves could not be used, they became frozen assets in a crisis. Although banks held an amount in excess of the minimum, they frequently had to suspend cash payments, precipitating financial panics. The pyramiding of reserves in the unit-bank system exacerbated the problem; when faced with an increased demand for cash during a crisis, each bank had to think first of itself and contract by pulling its reserve deposits from its correspondent. By contrast, the larger branch banks in Canada maintained higher cash reserves precisely for such occasions (Dunbar 1917, pp. 83–84). In a truly free banking system, banks would have been able to use their reserves when needed, but would also have been able to issue bank notes in exchange for deposits without decreasing their cash reserves (Perrin 1911, pp. 863–64).

Restraints on the Issuing of Bank Notes

Before establishment of the national bank system in 1863, state chartered banks were often encouraged to overissue bank notes by state laws that permitted issuance in an amount equal to the face value of state bonds purchased by the banks. These bond requirements often burdened banks with illiquid bonds and set an unhealthy precedent of backing note issue with government bonds rather than commercial assets. Nevertheless, these notes did circulate at various rates of discount, and the public was kept somewhat informed of their relative values by various bank-note reporters.

When the national banking system was established, these state bank notes were taxed out of existence in order to give national banks the sole privilege of issuing notes. To compensate for having established thousands of independent banks, the federal government printed uniform bank notes to be issued by those national banks in the course of lending. Since these bank notes were homogeneous, they were received and paid out by national banks all over the country at par, thereby constituting a federal currency. While this practice by banks of paying out each other's notes mitigated the inconvenience of the absence of branches, it did not test the ability of each bank to redeem its own notes (Dunbar 1917, p. 228); thus the system did not provide a check on expansion (Smith 1936, p. 132).

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Each national bank was required to maintain with the U.S. Treasury a reserve equal to 5 percent of the bank's note issue (Dunbar 1917, p. 228). After 1874, however, the U.S. Treasury itself was the sole redeeming agency for all national bank notes, and it had to pay out "lawful money" for *all* bank notes presented, regardless of the size of the 5 percent reserve.

The large number of independent banks issuing homogeneous notes might be expected to cause an overissuance of notes, but not deposits. Checks were cleared through various clearinghouse settlements and were returned to the bank much faster than notes. Notes were a direct promise of the bank to pay the bearer, but checks did not obligate the bank to pay at all. Therefore, with banks paying out each other's notes, the notes did not return to the issuer in the manner of checks (Dunbar 1917, pp. 70–73). Nevertheless, in the United States, bank notes were often underissued because of an onerous restriction: Each national bank was required to deposit with the Comptroller of the Currency $100 of special 2 percent government bonds for every $90 of bank notes issued. National banks thus attempted to issue credit in the form of deposits rather than notes, frequently charging a higher interest rate to those borrowers who demanded their loan proceeds in notes. The underissuance of notes led to several liquidity crises peculiar to the United States. These panics forced banks to suspend cash payments because they could not exchange one liability for another—deposits for bank notes—but had to pay out legal tender cash in gold or greenbacks from their assets, thus depleting their reserves (Smith 1936, pp. 130, 134).

The value of government bonds, rather than the demand for bank notes, became the operative constraint on bank-note issuance. Reduction of the federal debt in the 1880s exacerbated the problem. The quantity of national bank notes fell from $325 million in 1880 to a little over $123 million at the end of 1890 (Dunbar 1917, p. 232). This sharp reduction in national bank notes stimulated interest in state bank notes: Between 1875 and 1892 there were 34 unsuccessful legislative attempts to repeal the 10 percent tax on state bank notes that had been imposed during the Civil War, in the hopes that such issues would satisfy the public's demand for currency (Dunbar 1904, p. 188).

The panics suffered by U.S. banks were avoided in Canada and England. Before the founding of the Bank of Canada in 1935, each bank was restricted in note-issuance to the amount of its paid-in capital, but it could exceed this amount by 15 percent in the crop-moving seasons. In England, banks were completely independent of the government; they had no required reserves or balance sheet

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restrictions. They survived the gold crisis of 1931 with no failures, runs, or suspensions (Baster 1934, pp. 9, 12).

The Cost of Government Deposit Insurance

The establishment of the FDIC assured the perpetuation of a unit-bank system that had produced 15,000 failures between 1921 and 1933. Arguments over the desirability of deposit insurance had raged since the mid-19th century. Between 1866 and 1900, 18 deposit insurance bills were introduced in Congress, and another 45 were introduced between 1900 and 1910, but none was passed. In fact, Congress considered 150 deposit insurance bills before passage in 1933 (Golembe 1960, p. 188). Advocates favored deposit insurance as the best way to keep the money supply from contracting in a unit-bank system. Representative Henry Steagall, a co-sponsor of the 1933 act that created the FDIC, was a strong proponent of government insurance precisely because he wanted to preserve the unit-bank system; Senator Carter Glass, initially an opponent, was recruited as a co-sponsor with the understanding that the permanent plan would cover only member banks (Golembe 1960, p. 182). Similar positions were assumed by various Comptrollers of the Currency: Those who advocated branch banking, such as D. R. Crissinger and John W. Poole, opposed deposit insurance; those who wanted to preserve unit banks, such as John S. Williams, favored insurance (Kent 1963, pp. 44, 54).

Even economists who would retain deposit insurance recognize its serious shortcomings. Benston (1983, pp. 229–30) concedes that insurance relieves depositor fears but acknowledges that it increases bank risk taking: The benefits from successful risky investments accrue mainly to stockholders of the institution, while the losses from unsuccessful ventures are borne mainly by the FDIC. Benston further charges that the current system leads to overregulation by the FDIC. Because it charges a flat rate, rather than a risk-based premium, the FDIC stands to lose if a failure occurs but gains nothing from success. He deplores the monopoly position of the FDIC and suggests that various federal agencies, as well as private insurers, be allowed to compete for business, thereby permitting those banks willing to pay higher premiums to assume more risk. Greenbaum (1983, p. 67) considers deposit insurance a moral hazard bacause it increases risk taking and gives banks the incentive to reduce their capital. He also argues that deposit insurance allows federal agencies to maintain a large number of banks in the industry via the subsidy

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of the flat-rate premium, preventing banks from achieving scale economies through nationwide branching.

Short and O'Driscoll (1983, pp. 12–13) recommend that private insurers be allowed to offer an alternative to the FDIC, even if the latter were retained as a dominant supplier. But Diamond and Dybvig (1983, p. 413) argue that private insurers could only operate on the fringe, since they would have to rely on their reserves and not on taxing power. However, England and Palffy (1982, pp. 13–14) contend that private insurers would be more selective in choosing their risks and could monitor banks more closely, while avoiding the publicity that now accompanies the FDIC "problem list." Government agencies cannot operate in secret, but publicizing federal aid to a struggling bank can precipitate the very run that the aid was intended to prevent. This was demonstrated in 1932 and 1933, when political pressure forced the Reconstruction Finance Corporation to disclose its loans to banks that were illiquid, and failures often followed within 60 days of the reporting (Sullivan 1936, p. 49).

Often omitted from discussions of government or private deposit insurance is the fact that the announced purpose of the FDIC was to protect depositors and *not* banks (Jamison 1933, p. 451). Of course, the actual purpose—admitted by former Senator Robert Owen in 1932 in testimony before Congress—was to maintain the money supply in a unit-bank system. Indeed, this "monetary-policy" motivation was evident before the Civil War, when six states set up guarantee or insurance funds for the protection of state bank notes. In almost all cases, the states avoided closing the banks by selling bonds to redeem the notes, and thereby preventing decreases in the money supply (FDIC 1953, pp. 49–51). But even if depositor protection were the objective, banks with unlimited branches would be much stronger and safer and would not need insurance. Some banks might subscribe to, say, $10,000 of private insurance per account as a marketing strategy to allay depositor fears, but there would be no implied total bank bailout like that apparently enjoyed by modern large institutions. Therefore, bank capital and reserves would have to rise above current levels. With nationwide branching, the correspondent system would not be needed; interbank deposits could not be used as an excuse for a government rescue.

Another major flaw in the current deposit insurance scheme is the implied subsidy from large to small banks. The gross premium is one-twelfth of 1 percent of all deposits, not merely insured deposits, and the larger banks have more of the larger accounts that are not fully covered. Part of this problem could have been alleviated by having the banks, rather than government agencies, audit each other,

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since they are insuring one another. This idea was proposed by some economists 70 years ago, when eight states set up deposit guarantee systems (Danner 1914, p. 220). Evidence also exists that under the bank note guarantee plans before the Civil War, the three states that allowed the banks to choose the auditors (Iowa, Indiana, and Ohio) enjoyed better bank supervision than the states in which auditors were political appointees (New York, Vermont, and Michigan). In the former case, the cost of laxity fell directly on the banks (FDIC 1953, p. 59).

Proponents of government deposit insurance argue that deposits are often hard to convert to cash when a bank's assets have to be sold at a loss. This necessitates, they contend, either government insurance or a central bank serving as lender of last resort (Diamond and Dybvig 1983, pp. 401–2). Actually this argument applies to the current situation wherein all currency is "outside money" to a bank, and central banks increase the money supply when they lend to commercial banks. But in a free banking system, currency is "inside money" to banks just as deposits are, so they can be exchanged for one another at the whim of the public without affecting the money supply.

Prior to the passage of the Federal Reserve Act, banks did resort to the issuance of a free-market currency—the clearinghouse loan certificate—that worked quite well in emergencies, even though it was illegal. After 1908 the Aldrich-Vreeland Act authorized the issuance of national bank notes on the basis of commercial loans rather than government bonds. Since both of these issues worked much like free banking, it is worthwhile to discuss them in more detail.

The Clearinghouse Loan Certificate

Between 1857 and 1907 commercial banks, first in New York and later in other reserve cities, resorted to the use of clearinghouse loan certificates (CLOCs) as a means of settling liquidity crises, during which cash payments were suspended. Their use was an example of a free-market solution to crises caused by legal restrictions on the issuance of currency, anti-branching regulations, and the forced holding of idle reserves. The clearinghouse worked like an ad hoc central bank, issuing an illegal currency at which the government winked. With the inducement of a 6 percent interest rate, the stronger banks willingly acquired the CLOCs that deficient banks issued on the basis of 75 percent of the face value of collateral security. In 1873 and 1893 certified checks drawn with no funds on deposit and cashiers checks payable only through the clearinghouse were used in

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place of currency or as settlement media. After 1873 the concept of the CLOC spread to many parts of the country. Large denominations served as reserves, and small denominations were used as currency substitutes. In Chicago CLOC denominations were as low as $1 and in Atlanta 25 cents (Timberlake 1984, pp. 4–6). The only loss on these certificates over the 50-year period was $170,000 in Philadelphia in 1890. Interest rates constrained the use of CLOCs just as the gold standard limited the monetary base.

Although CLOCs did not prevent the failure of weak banks, they did prevent a fractional reserve collapse as in the 1930s. In 1908 the Aldrich-Vreeland Act authorized the issuance of regular national bank notes, without the backing of the special government bonds, thereby rendering CLOCs obsolete for national banks but not for state banks. While CLOCs worked very well, they were considered "hucksterish" and were associated with cash suspensions. In addition, popular sentiment felt that the government, not private banks, should issue currency (Timberlake 1984, pp. 13–14).

Aldrich-Vreeland Act Currency

The Aldrich-Vreeland Act, passed in May 1908, permitted any 10 or more banks with an aggregate capital of at least $5 million to form national currency associations for the issuance of new bank notes, which could be backed by commercial paper or other securities, not merely government bonds. The restrictions on issuance, however, were so burdensome that no Aldrich-Vreeland Act currency (AVAC) was issued for six years, even though 21 associations were actually formed. A prerequisite for issuing AVAC was the existence of outstanding bank notes backed by U.S. bonds in amounts of at least 40 percent of capital stock; AVAC could not exceed 75 percent of the cash value of securities backing it. In addition, a tax of 5 percent per year was imposed on AVAC for the first month it was outstanding, and this tax increased by 1 percent per year every month until a maximum of 10 percent per year was reached (Comptroller 1908, pp. 73, 75).

However, the Federal Reserve Act of 23 December 1913 amended the 1908 law by decreasing the tax on AVAC to 3 percent per year for the first three months, after which the tax increased 0.5 percent per year every month to a maximum of 6 percent per year. Another amendment was passed in August 1914 that permitted the Secretary of the Treasury to waive the prerequisite of U.S. bond-backed currency outstanding equal to 40 percent of capital. The 1914 amendment also allowed issuance of AVAC to equal 125 percent of aggre-

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gate capital and annulled a provision that limited the total issue to $500 million (Comptroller 1914, pp. 12–13).

At the outbreak of World War I in August 1914, England was demanding payment of loans in gold and established a special bank in Ottawa, Canada, to receive shipment. This caused another liquidity crisis in the United States, as banks saw their reserves depleted not only by the loss of gold but also by the public's increased demand to withdraw currency (Sprague 1915, p. 517). Instead of relying on CLOCs, as in past crises, banks for the first time issued AVAC.

The new currency prevented the suspensions of cash payments that were characteristic of the panics in 1873, 1893, and 1907. Applications to issue AVAC began the first week of August 1914; only 1,363 of the 2,197 banks in the 45 currency associations actually took out the new bank notes. The aggregate amount taken out by all banks was $386.4 million, but the most out at any one time was $368.6 million, 95 percent of the aggregate (Comptroller 1915, pp. 92, 99). By the first week of January 1915, 60 percent had been retired. The entire amount was retired by the end of June 1915, except for $200,000 in a failed bank. Less than one-fourth of the possible amount was ever issued; the New York City banks issued $144.9 million, or 37.5 percent of the total. The government collected $2,977,066 on the AVAC. Approximately 57 percent was backed by commercial paper, 28 percent by miscellaneous securities, 14 percent by state and local government bonds, and 0.5 percent by warehouse receipts. New York banks were the first to apply for issue and the first to retire, completing it on 25 January 1915 (Comptroller 1915, pp. 91–92, 101).

During this crisis, the banking system acted more like a model free banking system than at any previous time in history. Currency was issued in exchange for deposits when the public demanded it, and it was extinguished when demand subsided. Banks were able to conserve their gold certificates and greenbacks as reserves by paying out the bank notes for use as hand-to-hand currency. Because of the peculiarity of the U.S. banking system, however, some of these bank notes served as reserves for state-chartered banks, even though they were not reserve money for national banks (Sprague 1915, p. 523).

The Aldrich-Vreeland Act worked far better than the Fed did in the early 1930s. Nevertheless, Aldrich-Vreeland did not create a truly free banking system. The latter would include a much smaller number of large banks with extensive branches, paying out only their own distinctive bank notes, which would not be subject to a tax. Each bank would be able to observe a separate demand for its own money, which it could supply in an amount that would keep its price stable

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in terms of competing bank notes. The supply of money would be microeconomically determined.

Conclusion

This paper proposes complete deregulation of the banking system as the surest way to an improved monetary system. The shortcomings of the past were not caused by too few government regulations, but by too many. Yet each crisis brought more government intervention, because the public apparently believed that there was something inherently unstable about banking. Too little was heard about the handicaps imposed on banks by these restrictions, although some economists did advocate unlimited branching.

If the existing stock of Federal Reserve notes were frozen and replaced only as they wore out (Friedman 1984, p. 49), they could serve as a reserve, like the frozen supply of greenbacks in the 19th century. Banks could issue their own notes, guaranteed redeemable in either Federal Reserve notes or such metals as gold or silver. The Fed then could buy back its stock from member banks and allow all financial institutions to close their reserve accounts and pay off their loans at the discount window. The Fed then could hand over its securities to the Treasury, cancelling them, and cease to exist.

Government deposit insurance could be phased out over a five-year period, perhaps retaining $10,000 per account for a few years longer until private companies decide whether they want to provide insurance and the public decides if it wants such coverage. Banks and other financial institutions should immediately be allowed to branch where they choose and to hold the types of assets, including reserves, they feel are best. The demarcation between banking and other businesses would necessarily be obliterated.

In a laissez-faire monetary regime, each bank would be in a much better position to keep its money supply (bank notes and deposits) equal to the demand than would a central bank because, with individual banks, the demand for money is much more observable. As such, an era of free banking and competing currencies would tend to stabilize the level of prices and reduce the uncertainty inherent in the current monetary regime.

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MONETARY CONTROL: THE SWISS EXPERIENCE

Ulrich Kohli and Georg Rich

I. Introduction

The switch to a floating exchange rate in January 1973 must surely be regarded as the most significant event in recent Swiss monetary history. The adoption of a floating exchange rate considerably enhanced the scope for conducting an effective anti-inflationary monetary policy. Under the fixed-rate regime, the Swiss National Bank (SNB)—Switzerland's central bank—was virtually powerless in shielding the Swiss economy from foreign price movements. In the late 1960s and early 1970s, Switzerland, like most other industrialized nations, was saddled with high and accelerating inflation. Although the SNB strenuously attempted to curb inflation through a variety of measures, its efforts turned out to be an exercise in futility. Since Swiss prices were closely linked to foreign prices, the SNB's restrictive monetary policy did not durably lower the inflation rate. Instead, it resulted in chronic balance-of-payments surpluses that compelled the SNB to intervene on the foreign exchange market and to purchase U.S. dollars against domestic currency. The resulting expansion in the domestic money stock was inconsistent with the SNB's desire to keep prices stable.

This conflict became very acute in 1971 when a huge balance-of-payments surplus compelled the SNB to absorb large amounts of U.S. dollars. From March 1971 to March 1972, official interventions on the foreign exchange market caused the Swiss monetary base to surge by a staggering 47 percent. Not surprisingly, this massive increase in the monetary base was followed by a sharp acceleration of inflation (Figure 1), reaching a peak of over 10 percent in 1974.

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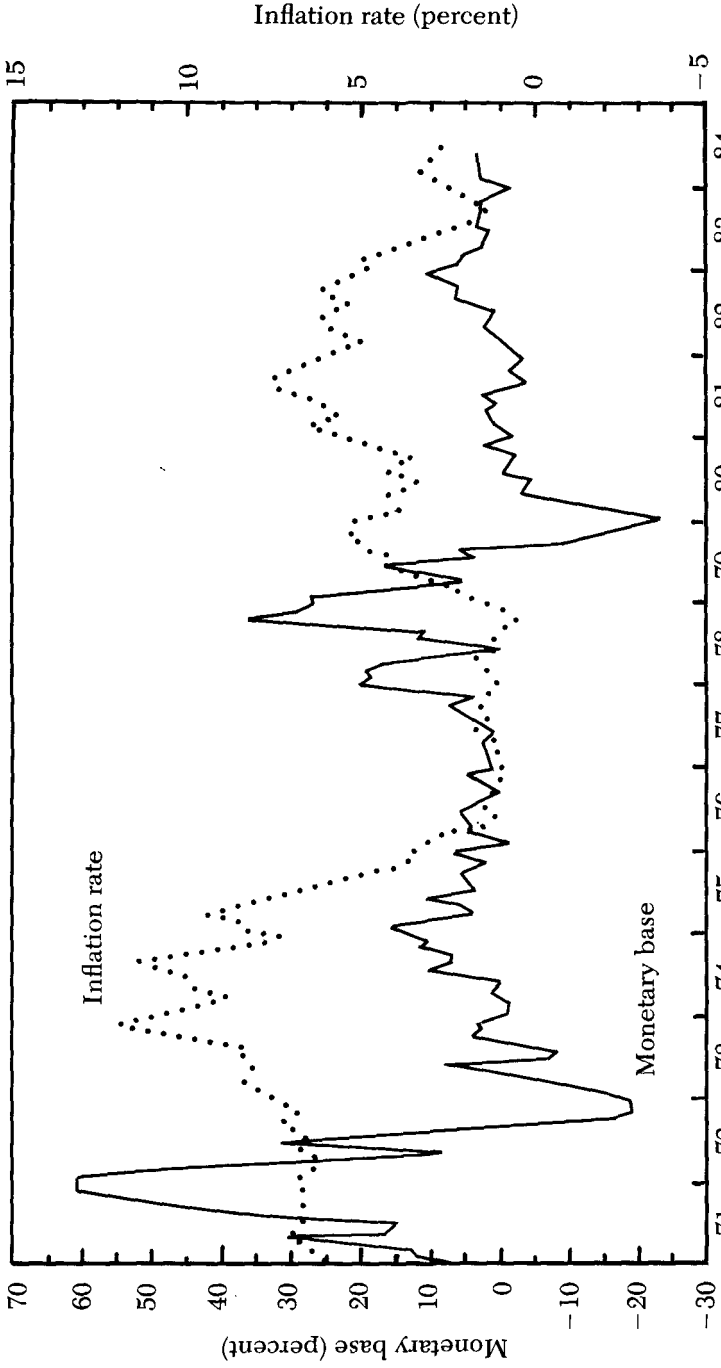
FIGURE 1

BASE MONEY GROWTH AND INFLATION



NOTE: Year-on-year rates of change in monetary base and consumer prices.

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As a result of the shift to a floating exchange rate, the SNB gained full control over the monetary base since it was no longer committed to intervene on the foreign exchange market. The SNB immediately employed its newly won powers to launch a major assault on inflation. As indicated by Figure 1, the SNB's efforts to lower the inflation rate have been reasonably successful. Since 1974, Swiss consumer price inflation has followed a downward trend and has remained well below the average for industrialized countries. Although double-digit inflation rates seem to be a thing of the past in Switzerland, we would be dishonest if we were to characterize the SNB's policy record as impeccable. Just a quick glance at Figure 1 suggests that the Swiss inflation rate has gyrated considerably over the past decade. From 1974 to 1978, it fell rapidly to a low of less than 1 percent, only to rise again to roughly 7 percent in 1981. Currently, consumer prices are rising at an average annual rate of about 3 percent. Thus, the SNB has not managed to eradicate inflation completely even though its policy performance compares favorably with that of other central banks.

The remainder of this paper proceeds as follows. In the next section, we discuss the Swiss experience of monetary targeting. In particular, we analyze the reasons that led the SNB to choose the monetary base as its intermediate target. In section III we present current estimates of money demand functions for Switzerland. In section IV we discuss the international dimension of Swiss monetary policy and briefly describe our attitude toward interventions. The last section contains our conclusions.

II. Monetary Targeting in Switzerland

Switzerland's success in maintaining a relatively low inflation rate is attributable to the fact that the SNB was one of the first central banks to adopt growth targets for the money stock. In Switzerland, most observers would share the viewpoint that inflation is due minly to excessive monetary growth. Hence, price stability requires a tight control of the money supply. Since 1980, the target has been set in terms of the monetary base. From 1975 to 1978, the targeted variable was M_1, but even then it was the base which was used as the prime instrument of monetary policy. It is interesting to note that the SNB seems to be the only central bank in the industrialized world to rely on the monetary base as a target variable even though Karl Brunner and other leading monetarists have consistently argued in favor of such an approach. Since control of the monetary base is a controversial issue, it may be useful to comment briefly upon our experience.

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In our view, the monetary base is a highly useful intermediate target variable. In principle, two conditions must be met if an intermediate target is to serve as a useful policy tool. First, the intermediate target variable should bear a close and systematic relationship with the variables the central bank ultimately wishes to influence. Second, the central bank should be able to control the intermediate target variable with reasonable accuracy.

As regards the first condition, the SNB has always regarded price stability as the ultimate objective of monetary policy. The SNB's focus on price stability reflects a firm political consensus in Switzerland as to the ultimate objectives of monetary policy. We do not believe that monetary policy should be used as a means for boosting output and employment. In our experience, a change in base money growth exerts at best a transitory effect on output and employment. This does not imply that the SNB completely ignores conditions in the labor market. Although we do not set targets for employment or other real variables, we attempt to achieve price stability in a way that causes as little fluctuation in output as possible.

The available empirical evidence lends strong support to the view that there is a close and fairly stable relationship between base money growth, on the one hand, and the inflation rate or nominal-income growth on the other. According to Figure 1, the Swiss inflation rate tends to react to changes in base money growth with a time lag ranging from two to three years. The message conveyed by Figure 1 is corroborated by econometric studies of the link between money and prices in Switzerland.

Tables 1 and 2 report estimates obtained by regressing the rate of increase of nominal income and the rate of inflation on past values of the rate of growth in base money (M_0) and M_1. A third-degree polynominal distributed-lag formulation is adopted in all cases, the lags varying between 4 and 19 quarters, and the weights being constrained to zero at the far end. Seasonally adjusted quarterly data covering the period 1973.1–1982.4 are used for all estimations. Nominal income is defined as nominal GDP, and inflation is measured in terms of the GDP deflator. In some instances, when explaining nominal income growth, we also included the rate of increase of nominal exports in an attempt to capture the effect of autonomous expenditures (there are no quarterly estimates of total government expenditures and revenues available for Switzerland). It is evident from the estimates in Tables 1 and 2 that there is a significant positive relationship between nominal income growth or inflation, on one hand, and monetary growth on the other. No meaningful signs can be detected during the first year following a monetary shock, but once

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TABLE 1

MONEY AND NOMINAL INCOME

A1) $\Delta\log(Y) = \sum_{4}^{19} \alpha_i \Delta\log(M_0)_{-i}$, $\sum\alpha_i = 0.713$, (3.97)

$\bar{R}^2 = 0.0123$, SEE = 0.0198, DW = 1.97.

A2) $\Delta\log(Y) = \sum_{4}^{19} \alpha_i\Delta\log(M_0)_{-i} + 0.246\ \Delta\log(X)$, $\sum\alpha_i = 0.482$, (2.75) (2.61)

$\bar{R}^2 = 0.1615$, SEE = 0.0182, DW = 1.90.

B1) $\Delta\log(Y) = \sum_{4}^{19} \alpha_i\Delta\log(M_1)_{-i}$, $\sum\alpha_i = 0.709$, (3.77)

$\bar{R}^2 = -0.0334$, SEE = 0.0202, DW = 1.88.

B2) $\Delta\log(Y) = \sum_{4}^{19} \alpha_i\Delta\log(M_1)_{-i} + 0.260\Delta\log(X)$, $\sum\alpha_i = 0.458$, (2.98) (2.48)

$\bar{R}^2 = 0.1483$, SEE = 0.0184, DW = 1.91.

TABLE 2

MONEY AND PRICES

A) $\Delta\log(P) = \sum_{4}^{19} \alpha_i\Delta\log(M_0)_{-i}$, $\sum\alpha_i = 0.621$, (6.88)

$\bar{R}^2 = 0.1671$, SEE = 0.0101, DW = 2.04.

B) $\Delta\log(P) = \sum_{4}^{19} \alpha_i\Delta\log(M_i)_{-i}$, $\sum\alpha_i = 0.619$ (6.51)

$\bar{R}^2 = 0.1012$, SEE = 0.0105, DW = 1.75.

the effects become apparent they tend to last for a long time. Our results suggest that the lags could extend up to five years.

It is noteworthy that the monetary base actually performs somewhat better than M_1 as a predictor of nominal income growth and inflation. This can be seen from the standard error of estimate (SEE) that is systematically smaller with the first measure of the money supply. However, the difference is rather small, and on balance the two definitions of money yield very similar results so that no strong case in favor of either aggregate can be developed on the basis of these estimates.

Let us turn now to the question as to whether the monetary base can be controlled by the central bank. Central bankers outside Switzerland frequently profess to be unable to control the monetary base and, therefore, oppose growth targets for that aggregate. Normally,

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they refer to various institutional obstacles to support that view. There is little doubt that certain institutional prerequisites must exist if monetary base control is to work. In the light of Swiss experience, it seems that two conditions are particularly important.

First, the central bank should be legally empowered to keep a tight rein on its advances to commercial banks. In most countries, the central bank has only limited influence over its loans to commercial banks. Notably, discount and lombard loans are extended on the initiative of commercial banks. Thus, central-bank efforts to vary the monetary base in line with a growth target may be thwarted by unexpected changes in discount and lombard loans.

In Switzerland the problems posed by unexpected changes in discount and lombard loans are not serious since the SNB tends to act as a tight-fisted banker when confronted with requests for financial assistance by commercial banks. The available policy instruments are powerful enough to give the SNB virtually full control over the monetary base.

While the growth trend of the monetary base is determined entirely by the SNB (mainly through foreign exchange swaps), problems occasionally arise in checking commercial bank borrowings from the SNB at month-ends, when bank demand for liquidity typically rises. The bulk of the discount and lombard loans is granted under existing credit lines. As long as these are not exhausted, banks are free to borrow from the SNB at the official lending rates. Furthermore, for national defense purposes (to finance inventories of strategic materials), the SNB is committed to extend—upon request by commercial banks—some types of loans under repurchase agreements.

In an effort to tighten its control over the monetary base at month-ends, the SNB, in May 1981, introduced an application system for discount and lombard credits, as well as for credits extended under repurchase agreements. Commercial banks must notify the SNB a few days in advance as to the amount they wish to borrow at the end of a particular month. If the SNB considers commercial bank borrowings to be excessive, it has sufficient time to take offsetting measures. Thus, both the trend and the seasonal movements in the monetary base are now largely determined by the SNB.

Second, the central bank cannot operate a system of monetary base control unless commercial banks hold excess reserves, that is, reserves in excess of the legally required level. In order to prove this proposition, suppose that the SNB—for some reason—decides to reduce the monetary base. If commercial banks did not hold any excess reserves, the restrictive measure of the SNB, in the short run, would result in a reserve deficiency since bank deposits could hardly react

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instantaneously to the fall in the monetary base. Unless the SNB were prepared to tolerate a reserve deficiency, it could not help providing assistance in the form of discount and lombard loans to commercial banks in order to make up the deficiency. Thus, if commercial banks did not maintain excess reserves, the SNB could not reduce the monetary base, at least not in the very short run.

In Switzerland, commercial banks know that they cannot count on the SNB to obtain automatically additional liquidity if they should be short of legally required reserves. Therefore, they have an incentive to hold adequate reserves. If a bank endeavors to hold insufficient excess reserves, it may well find that it has to borrow additional liquidity in the money market at very high interest rates in case of a reserve deficiency. It is not uncommon for the Swiss overnight lending rate to rise to 100 percent and more, especially at month-ends.[1]

Excess reserves constitute an important element in the transmission of monetary disturbances to the real sector of the economy. If the SNB wishes to decrease the monetary base, the initial effect is to reduce excess reserves of commercial banks. In the very short run, a decision to diminish the monetary base through, say, a reduction in the SNB's foreign exchange swaps leads to an increase in short-term interest rates, prompting commercial banks to substitute interest-earning assets for excess reserves. Since the policy shift does not instantaneously affect domestic output and prices, the drop in the monetary base, at first, is merely offset by an interest-induced rise in the base velocity. However, as time wears on, higher (real) interest rates will lower output and eventually prices, causing the nominal demand for base money to decline. Thus, the initial rise in interest rates and base velocity is reversed.

Unlike the monetary base, the money stock M_1 can only be controlled indirectly by the SNB. Until 1978—when a target for M_1 was in effect—the SNB attempted to influence M_1 by way of an operational target for the monetary base. In order to translate the M_1 target into a monetary-base target, we used a small model for forecasting the money multiplier.[2] This system worked quite well except in periods of violent exchange rate fluctuations when the multiplier became difficult to predict. (See Rich and Schiltknecht [1980]; Rich and Béguelin [1985].) Since our multiplier forecasts were frequently unreliable, we decided in 1979 to choose the monetary base as our intermediate target. The shift to a monetary base target was facilitated

[1]See Rich and Béguelin (1985) for a formal analysis of the reasons why Swiss banks hold excess reserves.

[2]The model is presented in Büttler et al. (1979).

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by the fact that the base is under our direct control and seems to be as closely related to our ultimate target variable as M_1.

On the whole the SNB has been reasonably successful in achieving the targeted growth rates of the money supply. Except for the turbulent 1978–81 period (see section IV below), the effective growth rates have come close to the intended ones (see Table 3). This record has undoubtedly contributed greatly to establish SNB credibility and to help promote price stability in Switzerland.

III. The Role of Money Demand Functions in Setting Monetary Targets

One of the main pillars of monetarist thought is the hypothesis of a stable demand function for money. This question has been investigated thoroughly with data from many countries, including Switzerland. The existence of a well-behaved money demand function is crucial for the validity of monetarist prescriptions, and knowledge of its properties is important for the formulation of policy. Thus, at the

TABLE 3

MONETARY GROWTH: TARGETED AND EFFECTIVE

	Target Variable[a]	Target[b]	Effective[b]
1975	M_1	6	4.4
1976	M_1	6	7.7
1977	M_1	5	5.5
1978	M_1	5	16.2
1979	—	—	—
1980	M_0	4[c]	−0.6[c]
1981	M_0	4	−0.5
1982	M_0	3	2.6
1983	M_0	3	3.6
1984	M_0	3	2.5
1985	M_0	3	2.2

[a]M_1 covers currency outside the federal government and the commercial banks, as well as demand deposits of Swiss nonbanks with the postal giro system and the commercial banks. M_0 stands for the adjusted monetary base (deposits of private sector with the SNB and outstanding bank notes less the month-end bulge in SNB credit to the commercial banks).

[b]Average of monthly year-on-year rates of change.

[c]The target for 1980 was defined as the average percentage increase in M_0 over the level of November 1979. For each month of 1980, the percentage increase over the level of November 1979 was calculated. The monthly growth rates were in turn compounded in order to obtain annualized rates. The effective rate of −0.6 percent represents the average of the annualized growth rates.

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SNB, the annual monetary target is set with reference to money demand functions and subject to predictions as to the values of their arguments. Hence, the estimation of money demand functions is an ongoing project at the SNB.

In order to illustrate the use of money demand functions in setting our target, we take the following long-run money demand function as our starting point:

$$\log(\hat{m}) = \alpha + \beta\log(y) + \lambda r;\ \beta>0,\ \gamma<0, \tag{1}$$

where $(\hat{m})$ is desired real cash balances, y is real income, and r is a rate of interest. β is the income elasticity of the demand for money, and γ is the interest semi-elasticity. We assume that actual cash balances (m) slowly adjust toward their desired level as follows:

$$\log(m) - \log(m_{-1}) = \lambda[\log(\hat{m}) - \log(m_{-1})];\ 0<\lambda\leqq 1, \tag{2}$$

where λ can be interpreted as the speed of adjustment. Substituting (1) into (2) we get the following short-run money demand function:

$$\begin{aligned}\log(m) &= \alpha\lambda + \beta\lambda\log(y) + \gamma\lambda r + (1-\lambda)\log(m_{-1}) \\ &= a + b\log(y) + cr + k\log(m_{-1}),\end{aligned} \tag{3}$$

where $\beta = b/(1\text{-}k)$ and $\gamma = c/(1\text{-}k)$.

Money demand functions such as (3) have been used extensively in empirical work, generally with considerable success.[3] We report in Table 4 quarterly estimates of this function for Switzerland,

TABLE 4

DEMAND FOR MONEY: REAL ADJUSTMENT

A) $\log(M_0/P) = \underset{(0.31)}{0.338} + \underset{(2.20)}{0.366\log(y)} - \underset{(-3.61)}{0.015r_s} - \underset{(-1.46)}{0.028\Theta} + \underset{(6.00)}{0.588\log(M_0/P)_{-1}}$,

$\bar{R}^2 = 0.7398$, SEE = 0.0479, DW = 1.79, h = 1.06.

B) $\log(M_1/P) = \underset{(2.14)}{1.027} + \underset{(2.30)}{0.138\log(y)} - \underset{(-5.89)}{0.009r_s} - \underset{(-2.62)}{0.009r_L} - \underset{(-2.08)}{0.015\Theta} + \underset{(18.18)}{0.776\log(M_1/P)_{-1}}$

$\bar{R}^2 = 0.9546$, SEE = 0.0183, DW = 1.87, h = 0.50

[3]See Goldfeld (1973). Equation (3) is generally called the Chow equation (Chow 1966). Money demand equations similar to (3) can be derived from the permanent income hypothesis (Feige 1967).

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covering the period 1968.1–1982.4. Both the monetary base and M_1 are considered in the analysis. P is defined as the GDP deflator, while y stands for real GDP. The equation for M_1 includes a short-term (r_S) and a long-term interest rate (r_L); however, only r_S is used in the equation for M_0. Furthermore, a shift variable (θ) is added in both equations in an attempt to capture the effect of the switch to a floating exchange-rate regime in 1973.[4]

Judging from the estimates in Table 4, both the demand for M_0 and M_1 can be explained with a reasonable level of accuracy and with a relatively small number of variables. All parameters have the expected sign. Note that the speed of adjustment is fairly low, particularly for M_1. This is not an uncommon result, however. In fact, our estimate of $\lambda(= 0.22$ for $M_1)$ is only slightly smaller than that of Goldfeld (1973). The long-run income elasticity is estimated to be somewhat less than unity for both aggregates (0.89 for M_0 and 0.62 for M_1).

Table 4 also suggests that both the demand for M_0 and M_1 are sensitive to changes in interest rates. Furthermore, there is no indication of any autocorrelation of the disturbances in either equation. On the whole, therefore, our results appear to be quite satisfactory. It is noteworthy, however, that the standard error of estimate (SEE) is considerably smaller for M_1 than for the monetary base.

Money demand functions such as (3) are sometimes criticized on the ground that equation (2) is not realistic as an adjustment mechanism, for it implies that adjustment to changes in income and interest rates is gradual, while adjustment to changes in prices is instantaneous.[5] Thus, it might be more realistic to assume that adjustment takes place in nominal terms, that is, to replace (2) by the following equation:

$$\log(M) - \log(M_{-1}) = \lambda[\log(\hat{M}) - \log(M_{-1})];\ 0<\lambda\leqq 1, \qquad (4)$$

where M and $\hat{M}$ are respectively actual and desired nominal cash balances. Since $m = M/P$ and $\hat{m} = \hat{M}/P$, substitution of (1) into (4) yields an alternative specification of the short-run, money demand function:

$$\begin{aligned}\log(M/P) &= \alpha\lambda + \beta\lambda\log(y) + \gamma\lambda r + (1-\lambda)\log(M_{-1}/P) \qquad (5)\\ &= a + b\log(y) + cr + k\log(M_{-1}/P)\end{aligned}$$

The only difference between equations (3) and (5) concerns the

[4]The term r_S is defined as the rate on 3-month deposits at large commercial banks, and r_L is the return on federal government bonds. S is equal to zero until 1972, and unity thereafter. Yearly estimates of (3) are reported in Kohli (1984).

[5]See Goldfeld (1976).

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denominator of the last term on the right hand side: while the current value of the price level appears in equation (5), its lagged value shows up in (3). Empirical estimates of equation (5) are reported in Table 5.[6] Evidently, the demand functions are well behaved for both M_0 and M_1. Interestingly, the estimates in Table 5 are very similar to those reported in Table 4, although the income elasticities became somewhat larger when the adjustment mechanism (4) is used in place of (2).

Regarding the quality of the fit, we find the evidence inconclusive. For the monetary base, the standard error of the estimate is somewhat larger in case of equation (5) than in case of (3), but the reverse holds true for M_1. In any event, the differences are minute. It is noteworthy, however, that there are now traces of autocorrelation in the equation for M_1 which might be an indication of misspecification. For this reason, we have a slight preference for equation (3) over (5).[7]

In order to set a monetary target, the SNB proceeds in two steps. First, we determine a medium-run target defined as the growth rate of the monetary base required to achieve and maintain price stability in the medium-run. This target is calculated on the assumption that

TABLE 5

DEMAND FOR MONEY: NOMINAL ADJUSTMENT

A) $\log(M_0/P) = \underset{(-0.10)}{-0.122} + \underset{(2.61)}{0.421}\log(y) - \underset{(-3.48)}{0.014}r_s - \underset{(-1.84)}{0.035}\Theta + \underset{(5.96)}{0.584}\log[M_{0(-1)}/P]$,

$\bar{R}^2 = 0.7383$, SEE = 0.0480, DW = 1.79.

B) $\log(M_1/P) = \underset{(0.89)}{0.516} + \underset{(3.45)}{0.229}\log(y) - \underset{(-5.40)}{0.010}r_s - \underset{(-1.87)}{0.008}r_L - \underset{(-2.72)}{0.023}\Theta + \underset{(15.17)}{0.737}\log[M_{1(-1)}/P]$,

$\bar{R}^2 = 0.9969$, SEE = 0.0169, DW = 1.98, $\rho = \underset{(2.15)}{0.267}$

[6]All the equations are estimated by OLS except (B), where correction for autocorrelation is made with the help of the Cochrane-Orcutt method; b stands for the coefficient of first-order autocorrelation.

[7]Furthermore, a number of authors have recently argued that (5) is untenable as a description of the adjustment process during periods of monetary control. See Laidler (1982, 1984) who advocates an approach based on the concept of monetary disequilibrium. Some of the ideas suggested by Laidler are examined by Kohli (1985).

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domestic interest rates are unlikely to show an upward or downward trend once the inflation rate has settled near zero. Thus, nominal base-money growth consistent with medium-run price stability may be estimated from equation (1) if a forecast of the trend growth in Swiss GDP is inserted and if domestic interest rates and the price level are treated as constants.[8] Considering the medium- and long-run growth prospects of the Swiss economy, we obtain a medium-run target for base money growth of at most 2–2.5 percent per annum. The second step involves specifying annual growth targets for the monetary base. In principle, the annual and the medium-run targets should be the same if price stability is to be achieved. In practice, the SNB has not simply set the annual targets equal to the desired medium-run growth rate. As indicated by Table 3, the annual targets to date have systematically exceeded the medium-run target, but the gaps between them have narrowed considerably over the years. This divergence is attributable to the fact that the SNB—since the mid-1970s—has attempted to pursue a gradualist approach to fighting inflation. The outcome, however, has been less gradualist than intended since there have been considerable discrepancies between effective and targeted growth rates. These gaps are not explained by defects in our system of monetary base control. Instead, they mirror severe constraints resulting from the openness of the Swiss economy that the SNB must face.[9]

IV. Monetary Control in an Open Economy

Although the link between Swiss money and prices is a tight one, it is not completely predictable, due mainly to unforeseen movements in the exchange rate of the Swiss franc. For this reason, the central bank of a small country such as Switzerland cannot chart its policy course without regard to future developments on the foreign exchange market.

[8]This is not to imply that we rely exclusively on the information drawn from Table 4 in order to estimate nominal, base money growth consistent with medium-run price stability. Although the estimates of Table 4 are quite satisfactory, there is clearly room for improvement. In particular, it appears that the explanatory power of equation (3) is strengthened if the monetary base is disaggregated into three components: deposits of commercial banks with the SNB, as well as large-denomination and small-denomination bank notes. Furthermore, the question arises to what extent real, base money demand is affected by variables other than interest rates and output.

[9]In 1980 and 1981, substantial errors in forecasting the demand for bank notes were an additional reason for the SNB's failure to meet its annual targets. Since the demand for bank notes grew less than expected, the SNB decided to undershoot somewhat its target.

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The Swiss economy is highly sensitive to exchange-rate fluctuations since both exports and imports amount to roughly 40 percent of GNP. Unfortunately, the staff of the SNB does not possess any exceptional skills in predicting future exchange rate movements. We share the fate of ordinary mortals in that our exchange rate forecasts are frequently wrong. If the SNB fixes its money stock targets on the basis of erroneous exchange-rate forecasts, it may very well be led to pursue an inappropriate policy course. The turbulent events of 1978 are a good case in point.

In 1977 and 1978, Swiss monetary policy was repeatedly bedevilled by exchange-rate problems, due to an unexpectedly strong appreciation of the Swiss franc (see Figure 2). From the SNB's standpoint, this appreciation was a mixed blessing. On the one hand, it speeded up the response in the domestic price level to the SNB's restrictive monetary policy through a drastic reduction in the domestic prices of internationally traded goods. Therefore, the inflation rate dropped to a level that was lower than might have been believed on the strength of base money growth recorded over the preceding two to three years. The rapid decline in the inflation rate, of course, was welcome news for a central bank intent on achieving price stability as quickly as possible. On the other hand, the upvaluation of the Swiss franc created difficulties for domestic industries exposed to foreign competition. By the summer of 1978, the Swiss franc had surged to such an extent that we began to worry about the prospect of a drastic slump in economic activity. In order to avert a recession, the SNB—in October 1978—reluctantly decided to replace temporarily its money stock target by an exchange rate target in the form of a floor on the Swiss-franc price of the Deutsche mark.

The official purchases of foreign exchange required to halt the upvaluation of the Swiss franc caused the monetary base to increase by 17 percent from September 1978 to March 1979. The SNB was well aware that the temporary surge in the monetary base might be followed by a new spurt of inflation. As can be clearly seen from Figure 1, the policy shift of 1978, not surprisingly, reversed the downward trend in the inflation rate. However, the renewed acceleration of inflation was short-lived because the SNB switched back to a restrictive policy stance in 1979. At the end of 1981, the Swiss inflation rate once again began to follow a downward course. Thus the 1981 bulge in the inflation rate was the price the SNB had to pay for stabilizing the exchange rate of the Swiss franc.

The experience of 1978 testifies to the difficulties of conducting an anti-inflationary monetary policy in the face of violent fluctuations in exchange rates. Since unanticipated exchange-rate movements

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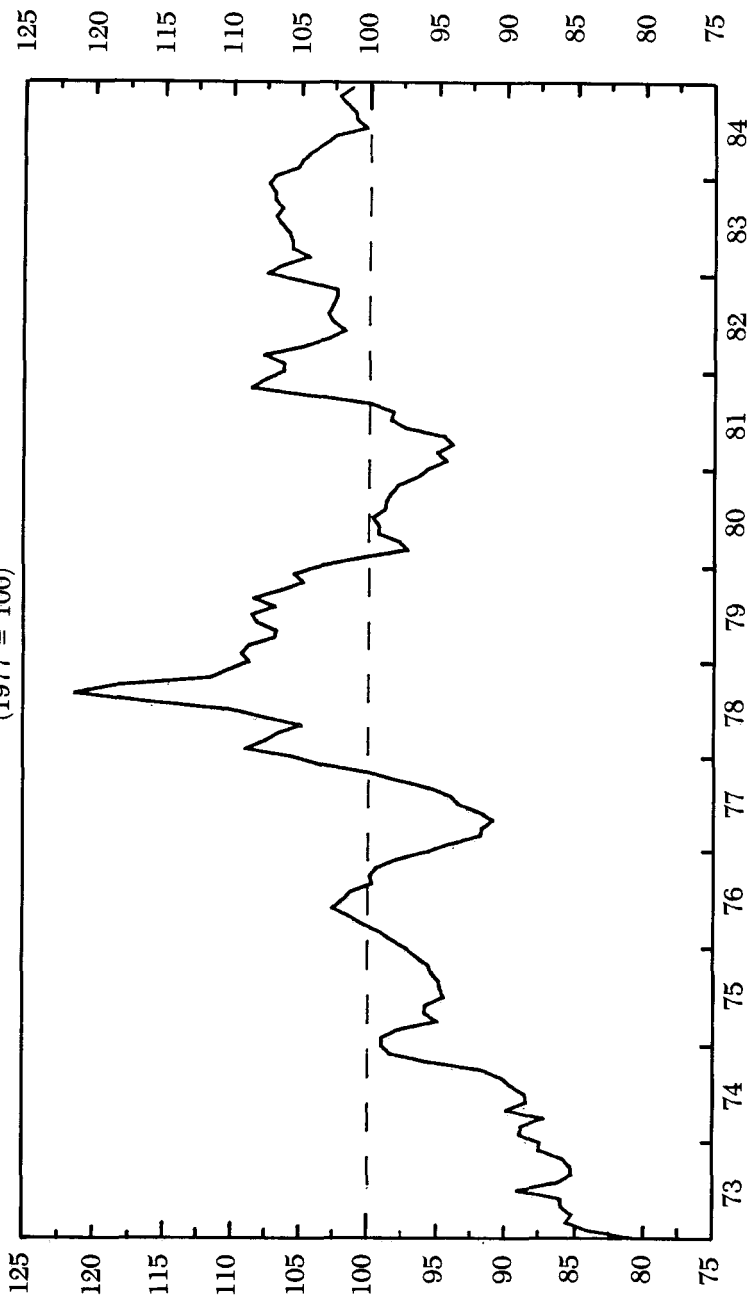
FIGURE 2
TRADE-WEIGHTED REAL EXTERNAL VALUE OF THE SWISS FRANC
(1977 = 100)



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may impair the performance of the monetary base as a policy indicator, the SNB has not stuck slavishly to its money stock targets but has followed what might be called a pragmatic monetarist policy course. This does not mean that we discard our money-stock target at the whim of a moment. Thus far, the crisis of 1978 has been the only instance in which the SNB decided to shift to an exchange rate target. Moreover, since 1982, the SNB has taken a rather relaxed attitude toward the exchange rate. While in 1981 the SNB attempted to curb a marked devaluation of the Swiss franc by undershooting substantially its monetary target (Table 3), the recent surge in the exchange rate of the U.S. dollar vis-à-vis the Swiss franc and other major currencies has not led it to tighten its monetary policy. Instead, the SNB has adhered closely to its monetary targets over the last three years.

The SNB's relaxed attitude toward the exchange rate is also mirrored by its current policy of nonintervention on the foreign exchange market. During the 1970s, the SNB frequently attempted to manage the exchange rate of the Swiss franc through sterilized or nonsterilized interventions, but since August 1983 it has refrained from buying and selling foreign currencies, save for commercial purposes. Our current passive posture does not imply that we are opposed, in principle, to interventions on the foreign exchange market. If exchange rate movements should be large enough to damage seriously the Swiss economy, the SNB stands ready to intervene on the foreign exchange market and, if necessary, to adjust its monetary base target. However, at the present moment, we see no need for manipulating the exchange rate. In our opinion, we serve the Swiss economy better if we allow the monetary base to expand at a steady pace in line with the ultimate objective of price stability than if we attempt to smooth every wriggle in the exchange rate.

V. Conclusion

Our experience at monetary control has taught us a number of lessons. The most important one is that the fight against inflation is a task that requires considerable persistency and much consistency in policy. There may be many setbacks in the short run, but eventually the policy, if maintained, will bear its fruits. In this respect, monetary targeting has been of invaluable help to us.

A second lesson, however, is that the approach to monetary targeting should not be dogmatic. Even if we are convinced that our approach is the correct one in the long run, short-run costs may be too high to bear, and some flexibility is at times needed. This is particularly true

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for a small open economy such as Switzerland where foreign developments can have too large an impact to be ignored. Moreover, there are few propositions, if any, in economics which have ever been established beyond any doubt; hence the need to keep an open and alert mind.

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CURRENCY COMPETITION VERSUS GOVERNMENTAL MONEY MONOPOLIES

Roland Vaubel

Barriers to Currency Competition

Currency competition for the established national central banks can come from foreign central banks or from private money suppliers (at home or abroad). At present, currency competition from both sources is severely restricted in many countries.

Currency competition from *foreign central banks* can be restricted in several ways:

- The currency issued by the national central bank can be prescribed as a private unit of account;[1]
- Contracts in foreign currencies can be prohibited by law or discouraged through discriminatory contract enforcement in the courts;[2]
- Governments can restrict or discourage the holding of foreign currencies by residents (or the holding of the domestic currency by foreigners) and thereby interfere with the choice of means of payments;
- Governments can refuse to accept any other currency than the one issued by their central bank.

Currency competition from *private money suppliers* is not admitted in any industrial country, but there have been many instances of

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[1]For instance, the national currency is prescribed for the denomination of company capital in W. Germany, France, United Kingdom and for all obligations which enter the land register (W. Germany, France) or which have to be notarized (Belgium, France).

[2]In the United Kingdom, for example, the courts do not award foreign currency claims if the contract has been concluded between residents or in a "third" currency.

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such competition in monetary history (see Vaubel 1978a, pp. 387–400). To the extent that money may be issued by private enterprises at all, it must usually be denominated in the currency issued by the central bank. Moreover, with minor exceptions, private enterprises are not permitted to issue currency (notes and coins). Their supply of deposits is subject to reserve requirements and many other regulations.

The existence of these barriers to entry raises three questions: (1) What welfare-theoretic grounds are there to justify restrictions of currency competition from foreign central banks? (2) If there is a case for free currency competition from foreign central banks, why doesn't this case extend to private banks as well? (3) If private banks should be free to supply currencies of their own, why should the government (its central bank) supply money, or a monetary unit of account, at all? These questions are the topics of the following three sections.

The Case for Free Currency Competition among Central Banks

The standard argument against barriers to entry is that they narrow the consumers' freedom of choice and that they raise the price, and reduce the supply and the quality, of the product in question. Prima facie, an increase in "price" and decrease of supply may seem to be desirable in the case of money. Do not a smaller supply and a higher "price" of money imply less inflation? No, because the argument confuses the price of acquiring money (the inverse of the price level) with the price (opportunity cost) of holding money[3] and overlooks the fact that the holding demand for money is a demand for real balances. Since money is an asset to be held, demand for it depends on the price of holding it. The yield forgone by holding a money that bears no interest or is subject to non-interest bearing reserve requirements, is larger, the higher the expected inflation rate. An inflation-prone central bank loses real money demand to less inflation-prone foreign central banks.[4] In this way, it loses both revenue and its power to affect the national economy through monetary policy. Thus, the removal of barriers to entry encourages less inflationary monetary

[3]Harry Johnson (1969) has pointed out the same confusion in the work of Pesek and Saving (1967).

[4]In the absence of a forced or legal disequilibrium exchange rate, the less inflationary money prevails ultimately not only as a store of value but also as a means of payment. "Gresham's Law" operates only under very specific conditions created by government interventions (Vaubel 1978a, pp. 82–89).

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policies. In real terms, the standard case against barriers to entry applies to the product money as well: the removal of barriers raises the *real* quantity of money and reduces the relative price of *holding* it.

If the standard case for competition applies, it implies not only removal of barriers to entry but also prevention of collusion among the public producers of money. Collusion is the international coordination of monetary policies.[5] In the extreme case, it takes the form of fixed exchange rates, an international holding-price cartel among money producers.[6]

Competition among central banks reduces inflation in at least three ways:

1. *"Exit"*[7]—The world demand for money shifts from the currencies that are expected to depreciate and to be risky to currencies that are expected to appreciate and to be more stable.
2. *"Voice"*[7]—Even if exit does not help, public opinion in the more inflation-ridden countries is impressed by the example of the less inflation-ridden countries. It makes the government (the central bank) responsible for its inferior performance. In politics, too, competition works as a mechanism of discovery and imitation.
3. *Acceleration Effect*—Even in the absence of exit and voice, an inflationary monetary impulse in one country affects the price level faster than a simultaneous monetary expansion of equal size that is common to all, or several, countries. This is because the uncoordinated national monetary impulse affects the exchange rate, and to that extent the price level, almost immediately. By rendering the causal connection between money supply and price level more transparent, international currency competition reduces the likelihood of inflationary monetary policies.

In spite of these beneficial effects, free entry and, more generally, international currency competition are not usually advocated by national central banks, not even by the competitive ones. The Bundesbank, for example, launched a campaign in 1979 to convince the

[5]For a critical analysis of the welfare-theoretic arguments in favor of monetary-policy coordination see Vaubel (1983). Vaubel (1978b) shows that, in 1969–77, the average rate of European monetary expansion has always been negatively correlated with the dispersion of national rates of monetary expansion in the seven main countries.

[6]For a more detailed exposition see Vaubel (1978a, pp. 33f.). De Grauwe (1985) shows that, in 1979–84 the (full) members of the European Monetary System reduced their inflation less than the other major OECD countries on a weighted average.

[7]This is the terminology of Hirschman (1970).

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German public and foreign monetary authorities that everything had to be done to prevent the mark from taking over a larger part of the dollar's position as an international currency, especially as an official reserve currency.[8]

Typically, central bankers object to international currency competition on the grounds that it renders national monetary management more difficult and risky, and it destabilizes exchange rates and the whole international monetary system.

It is true that a spatial money monopolist enjoys a quieter life than a competitive producer who must take into account not only the changes in total money demand but also changes in its composition. If the demand for money shifts among currencies, a simple x percent rule for monetary expansion is not likely to be adequate. The forward premium and a world portfolio growth variable will have to be included in the money demand function[9] (or the monetary target has to be formulated for the "world" money supply or some proxy thereof).[10] Each central bank has to allow for the money supply decisions of other central banks.

Is international currency competition undesirable from an international point of view? It disciplines those who try to supply their product at too high a price. For instance, if international shifts in the demand for money have been responsible for the dollar's and sterling's weakness in the seventies and for the weakness of the French franc in the early eighties, they have played a crucial role in bringing about a correction. International shifts in the demand for money are not the cause of monetary instability but its consequence and symptom. They are part of the corrective feedback mechanism. They impose a constraint which, in open economies, is more likely to be admitted than a constitutional money supply rule.

Why do even central banks that would be competitive object to international currency competition? It is tempting to adopt a public-economics approach: the benefits of currency competition accrue to private money holders and users (lower inflation tax and inflation risk) and to domestic taxpayers (larger external seigniorage), but the cost, the greater difficulty of determining the optimal rate of monetary expansion, has to be borne by the central bankers. After all, bureau-

[8]Deutsche Bundesbank, "The Deutsche Mark as an International Investment Currency," *Monthly Report*, November 1979, p. 33. For a detailed critique see Vaubel (1982a). In a more recent article under the same title, the Bundesbank calls foreign holdings of DM assets "neither too large nor too small" (*Monthly Report*, January 1983, p. 13 of the German edition).

[9]For a theoretical and econometric implementation see Vaubel (1980).

[10]See the proposal by McKinnon (1983).

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crats tend to be held responsible for the errors they commit rather than for the opportunities they miss.

In the theoretical literature (notably Kareken and Wallace 1981), we find the objection that competition among central banks (outside monies) renders the equilibrium exchange rate(s) indeterminate because all, and only those, exchange rates which promise to be constant, are compatible with a rational expectations equilibrium. This objection is misleading because it assumes that monies are only stores of value and that they can be perfect substitutes. First of all, different groups of people who consume different baskets of commodities prefer different standards of value: since money serves as a standard of value, they would prefer different monies—i.e., monies that are stable in terms of different commodity baskets. Moreover, if for this reason (or owing to past government intervention) different monies coexist, currency transaction costs will reinforce the tendency toward the formation of (overlapping) payments circuits or currency domains. Thus, if money is also viewed as a standard of value and means of payment, two competing monies will hardly ever be perfect substitutes. The Kareken-Wallace view is not relevant to this world.[11]

Currency Competition from Private Suppliers: The Case for Free Entry

If free currency competition between the central banks of different countries has the salutary effect of reducing rates of inflation below the monopolistic rates, it is difficult to see why the case for a competitive supply of money should not also extend to competition from private banks of issue. From a present-day perspective, the suggestion of an unrestricted competitive supply of (distinguishable)[12] private high-powered money must be regarded as truly (counter-)revolutionary, and even Hayek needed more than half a year to proceed, in 1976, from the demand for "free choice in currency" to the case for the "denationalization of money."

Several justifications have been given for the prohibition of currency competition from private suppliers:

1. Profit-maximizing private issuers would increase the supply of their money until its price equals the marginal cost of producing it, namely zero; the result would be hyperinflation.[13]

[11]Haberler (1980, p. 44) writes about the Kareken-Wallace view (in paraphrasing Keynes): "it is an extraordinary example of how remorseless logicians can end up in Bedlam, if they get hold of the wrong assumptions."

[12]See Klein (1974).

[13]See Lutz (1936, pp. 4f.); Friedman (1959a, p. 7; 1969, p. 39); Pesek and Saving (1967, p. 129); Johnson (1968, p. 976); Meltzer (1969, p. 35); and Gehrig (1978, p. 454). This view has been criticized by Klein (1974, pp. 428–31); Vaubel (1977, pp. 449–52); and Girton and Roper (1981, pp. 21–24).

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2. Private competitive supply of money renders the price level indeterminate.[14]
3. The private banking system is inherently unstable.
4. Monopolistic production of money by the state is an efficient way of raising government revenue.
5. The supply of money is a natural monopoly because of economies of scale in production or use.
6. Money exerts positive external effects; money, or the currency unit, may even be a public good.

The first argument repeats the confusion noted above: it mistakes the price of acquiring money for the price (opportunity cost) of holding money. What private profit maximization reduces to almost zero is not the value of money but the opportunity cost of holding it.

Some authors have objected that private suppliers of money may choose to maximize their short-run profits rather than their long-run profits, thus opting for hyperinflation at the time of their greatest success, when the present value of their confidence capital is at its maximum. Klein (1974, p. 449) and Tullock (1975, pp. 496f.) have replied that private enterprises tend to have a longer planning horizon than democratically elected governments and their central banks. However, this answer implies that central banks act as profit maximizers as well—in some cases a debatable assumption. The answer is rather that, if there is a danger of "profit snatching," money holders will prefer currencies that offer value guarantees. This point will be further developed in the concluding section. It implies that private money is likely to be inside money. The first objection can only apply to outside money.

The second argument is correct in pointing out that the price level is indeterminate—indeed, under any system of money production, for the initial supply of nominal balances is an arbitrarily chosen number. To serve as an objection to private currency competition, the argument would have to show that the rate of change of the price level is indeterminate as well under such a system.

The third argument may justify money production by governments, but it does not justify barriers to entry. Whether claims on the private banking system are excessively risky is a question which each money holder can be left to decide on his own depending on his individual degree of risk aversion.

Fourth, even if a system of optimal taxation requires a tax on money balances in addition to the wealth tax, what reason is there to assume

[14]Gurley and Shaw (1960, pp. 255ff.); Patinkin (1961, p. 116); and McKinnon (1969, p. 316).

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that the collection of government seigniorage is more efficient than the taxation of private money creation or of private money holdings?

Fifth, if money is a natural monopoly good, the central bank does not need a legal monopoly (although it may have to be subsidized).[15] Since we do not even know whether money is a natural monopoly good and what its optimal characteristics are (for instance, whether it should be of stable or increasing purchasing power), barriers to competition from private issuers prevent us from finding out; the mechanism of discovery is blocked. A governmental producer of money is not an efficient natural monopolist unless he can prevail in conditions of free entry and without discrimination.[16] Historically, the major central banks have not acquired their national monopoly position in this way.[17]

Finally, if money exerts positive external effects or is even a public good, there may be a case for subsidization, or even for governmental production, of money, but not for barriers to entry. The private supply of money would be too small, not too large.

Should Governments Supply Money?

The previous section has shown that governmental production of money may be justified, if (i) the private banking system is inherently unstable, and/or if money is (ii) a natural monopoly good or (iii) a public good. Whether arguments (i) and (ii) apply is an empirical question which cannot be answered as long as free currency competition from private issuers is not permitted.[18] Monetary history does not provide a clear answer (Vaubel 1978a, pp. 387–401). Whether

[15]Subsidies may be justified even if marginal cost pricing is not the aim (because the additional taxation required would create excessive distortions elsewhere in the economy). They may be justified if the natural monopolist has passed the point of minimum average cost; for in this exceptional case, which Sharkey (1982, ch. 5) has emphasized, an efficient natural monopolist may be unable to produce the optimal quantity of output and to sustain himself against less efficient competitors if the government does not pay him a subsidy (which it should offer to all producers who supply at least as much output). Under Sharkey's assumptions, the subsidy must be sufficient to keep the net-of-subsidy average cost of the most efficient supplier of optimal output at the minimum average cost attainable for any smaller quantity of output.

[16]Nondiscrimination also implies that the government is willing to accept or pay any currency preferred by its private counterpart. Otherwise, a superior private money may not prevail in the market, merely because the government uses only its own money.

[17]The Bank of England, for example, was granted its monopoly not because it was gaining ground in the market but because it was losing out to the other joint-stock issuing banks which had emerged after the Bank's joint-stock monopoly had been abolished in 1826 (for details see Vaubel 1978a, p. 389).

[18]See Vaubel (1984) for an econometric test of the natural monopoly hypothesis and for a list of previous studies of this issue. The results are not conclusive.

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money is a public good, as has often been claimed, is largely a matter of definition and needs to be clarified.[19] There is no generally accepted definition of a public good. However, most authors seem to consider nonrivalness a necessary and sufficient condition.[20] Others regard nonexcludability as an alternative sufficient condition.[21] A few treat the term public good as synonymous with positive consumption externality.[22]

In this paper we shall retain the benefit of being able to distinguish between the general concept of consumption externality and the polar case of a (pure) public good which, in terms of production units, is equally available to all members of the group in a quantity or quality that is independent of the size of the group (nonrivalness).[23] We shall call a free good a good for which exclusion is not profitable (nonexcludability). The question of whether there are also more limited Pareto-relevant consumption externalities will not be pursued here because they would merely justify subsidies to money holders and users.[24]

One group of authors ascribe a public good nature to money because "any one agent, holding cash balances of a given average size, is less likely to incur the costs of temporarily running out of cash, the larger are the average balances of those with whom he trades."[25] However, money balances do not satisfy the nonrivalness criterion (nor the nonexcludability criterion): as long as one person holds a unit of money and benefits from its "liquidity services," nobody else can own it and benefit from it. If he gives it away, he increases his own risk of temporarily running out of cash. Therefore, he will ask for a quid pro quo—a good, service, or some other asset.

For the same reason, it is not true that "the provision of a convertible currency is an international 'public good' " because "a convertible currency can be held and used by foreigners" (McKinnon 1979, p. 3) or that "the dollar is an 'international public good' " because "the United States provides the world's reserve currency" (Schmidt 1979, p. 143). Otherwise, any exportable good or asset which happens

[19]The remainder of this section is adapted from Vaubel (1984).

[20]The seminal modern contribution is Samuelson (1954).

[21]See notably Musgrave (1959, p. 9).

[22]Samuelson (1969).

[23]This is essentially Buchanan's definition (1968, p. 54).

[24]See Vaubel (1984, pp. 32–45) for a discussion of confidence externalities, price level externalities, and transaction cost externalities. The analysis shows that there may, but need not, be Pareto-relevant externalities in the demand and supply of money.

[25]Laidler (1977, pp. 321f.). A similar view seems to be taken by Kolm (1972, 1977) and Mundell (Claassen and Salin 1972, p. 97).

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to be supplied by a government would be an international public good.

Kindleberger refers to "the public good provided by money as a unit of account" (1972, p. 434) and "standard of measurement" (1983, p. 383) and applies the term public good to "money"(1978a, pp. 9–10), "international money" (1976, p. 61; 1978b, p. 286), "an international unit of account," and "international monetary stability" (1972, p. 435). International monetary stability in the sense of stability of purchasing power or exchange rate stability is not a good but a quality characteristic of the product money. Quality characteristics, it is true, meet the nonrivalness test: enjoyment by one does not detract from enjoyment by others (nor can they be excluded from them) provided they have bought the good itself. However, this applies to the quality characteristics of all goods. If the publicness of its characteristics made a good a public good, all goods that are sold to more than one person would be public goods.

It might be argued that the benefits of a unit of account (and a price index) can be enjoyed by a person independently of whether he holds and uses the money which it denominates (Yeager 1983, p. 321). More specifically, a person or organization, by adopting a certain unit of account (and by publishing a price index for it), may convey information, a public good, to all others. This would imply that government should suggest a unit of account and publish a price index for it, but not that it should supply money, let alone the only (base) money[26] or monetary unit.

Brunner and Meltzer (1964, 1971) have emphasized that money itself is a substitute for information because it also reduces transaction costs, and because transaction costs can largely be reduced to the costs of information about possible transaction chains, asset properties and exchange ratios between assets. Since money is a substitute for information and since information is a public good, Hamada (1979, p. 7) and Fratianni (1982, p. 437) conclude, there is a "public good nature of money." However, to show that X is a substitute for a public good is not sufficient to prove that X is a public good. A fence, a dog, and an alarm system are all to some extent substitutes for police protection but they are not public goods. What has to be shown is not that money is a substitute for information but that it provides the public good of information.

Several authors have argued that "public consensus" or "social agreement" on a common money is a way of creating generally useful

[26]This conclusion is in fact reached by Engels (1981, pp. 10f.); Hall (1981, p. 21); and Yeager (1983, pp. 324f.).

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knowledge and is thus a public good.[27] The knowledge in question is the predictability of individual behavior. What becomes predictable is not only the money which each individual accepts but also that each individual in the country accepts the same money.

Public decisions by definition meet the nonrivalness test. However, not all public decisions are public goods—they can be public bads (Tullock 1971). Since the aim of securing predictability of individual trading behavior, if taken to the extreme, may serve to justify the most far-reaching central planning by an omnipotent government (Hirshleifer 1973, p. 132), the mere fact that a certain act of government generates knowledge is not a sufficient justification. It has to be shown that the knowledge in question is worth its cost and that it is provided more efficiently by the government than by a competitive private sector. Both contentions are controversial.

The only operational proof that a common money is more efficient than currency competition and that the government is the most efficient provider of the common money would be to permit free currency competition. Whether the imposition of a common money or monetary unit is a public good or a public bad depends on whether money is a natural monopoly good or not. Hence, there is no independent public-good justification for the government's money monopoly. The public good argument is redundant.[28]

Forecasting Monetary Arrangements under Free Currency Competition

If currency competition is to serve as a mechanism of discovery, government must not prescribe the characteristics of the privately issued currencies nor the organization of the private issuing institutions. Contrary to some proposals,[29] for example, it must not prescribe the monetary unit of account nor the types of assets that may be held by the issuing institutions.

[27]Hamada (1977, p. 16); Frenkel (1975, p. 217); Tullock (1976, p. 524); Tobin (1980, pp. 86–87); and, with respect to the unit of account, Hall (1983, p. 34); and Stockman (1983, p. 52).

[28]Currency competition might even be desirable if the process were known to converge to the government's money; for the government may not know in advance what type of money to converge to: "The monopoly of government of issuing money . . . has . . . deprived us of the only process by which we can find out what would be good money" (Hayek 1978b, p. 5).

[29]Engels (1981) suggests that the government "has the task of defining the monetary unit . . . in terms of the market valuation of real assets . . . and of securing the solvency of issuing banks" (pp. 9f.). Hall (1983) believes that private money must be denominated in an interest-bearing reserve certificate which is issued by the government and is indexed to the price level. See Vaubel (1982b) for a critical review of Engels.

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Refusal to prescribe specific arrangements does not prevent us from trying to forecast monetary arrangements under free currency competition; even Hayek (1978a, pp. 70ff., 122ff.) has done so. Hayek believes that private money would be stable in terms of "the prices of widely traded products such as raw materials, agricultural food stuffs and certain standardised semi-finished industrial products" (p. 71) and that "competition might lead to the extensive use of the same commodity base by a large number of issue banks" (p. 123). Vaubel (1977) has suggested that "value guarantees . . . are likely to be a necessary condition for acceptance of a competing money" and that "in the presence of unpredictable fluctuations in the determinants of the demand for money, value guarantees can only be maintained with precision and instantaneously, if they can be validated through exchange rate adjustment vis-à-vis another currency for which a price index is calculated" (p. 451). He believes that this reference currency, which cannot also be indexed (owing to the n-th currency problem), would be the outside money supplied by the government.

Another group of authors argues that the optimal money would appreciate relative to goods. Not all of them claim that the money which they regard as most efficient would also be most attractive to money users and prevail in the market, but this possibility should be considered. One variant is the so-called theory of the optimum quantity of money expounded by Friedman (1969), Johnson (1968), Samuelson (1963, 1969), and others; as Mussa (1977) has emphasized and criticized, it views money only as a store of value and ignores its standard of value function. According to another variant, which is due to Alchian and Klein (1973), the optimal monetary unit is stable in terms of a price index of all assets because the money cost of a given level of lifetime consumption utility ought to be held constant. Engels (1981) has recommended a real asset or pure equity standard because it would stabilize Tobin's q and thereby the business cycle. Engels suggests that such a unit would minimize the monetary risk for borrowers who invest in capital goods. However, the same is not likely to be true for all other debtors nor for all creditors. Bilson (1981) wants to transform money into an equity claim on a portfolio of real and nominal assets in order to render movements in the unanticipated rate of inflation countercyclical. A system of competing private mutual-fund monies is also envisioned by Fama (1982) and Greenfield and Yeager (1983). White (1984) predicts that they would not displace the government's outside money as a general medium of exchange.

Whether privately issued money would appreciate relative to, or be stable in terms of, some composite of goods, cannot be predicted

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with certainty. However, experience with hyperinflation shows that the value of alternative monies, some of them private monies, tends to be linked to the price of one or more commodities. At times, for example in Germany in 1922–23, several commodity standards were used side by side. Chen (1975) reports a case in which this occurred over two centuries. Whether convergence toward a common standard of value and money is efficient and occurs depends on how similar the purchase and sale plans of different market agents are and how variable they expect the relative prices among commodities to be.[30]

What assets are private issuing institutions likely to hold if they are not restricted by government? They would minimize their balance sheet risk by having their assets and their money denominated in the same unit of account. The intermediation risk is zero in the case of equity or mutual-fund money. It is also zero in the case of commodity reserve money, however at the price of a zero real rate of return. The issuer of a money whose value is linked to a commodity price index can earn a positive real rate of return without incurring a monetary intermediation risk, if his assets are indexed as well; but he (and his creditors) cannot avoid a real intermediation risk. Thus, under free currency competition—even more than now—the composition of banks' assets will depend on the risk-yield preference trade-off of money users. Their degree of risk aversion is likely to differ, and it may vary over time. It cannot be reliably predicted—not even by governments.

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[30]See Vaubel (1978a, 1982b).

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COMPETITIVE MONIES: SOME UNANSWERED QUESTIONS

Phillip Cagan

Professor Vaubel (1986) has in mind competitive currencies with varying rates of exchange with each other and government money. We already have relatively competitive bank money today, but with fixed rates of exchange with the dominant government money. Competitive money at varying rates of exchange can occur if a country starts using a foreign currency, which happens when inflation is rampant. But wide use of a currency with a fluctuating value in terms of the unit of account is very inconvenient and, as far as I can see, would not last for long. It would soon become the unit of account itself. Moreover, in introducing a new money from scratch, it seems to me there would be a strong attraction to fixing its value in terms of the existing unit of account. Who wants to deal with a fluctuating rate of exchange? So, no matter who issues the dominant money, it is likely to become fixed in terms of the unit of account. This tendency I believe is crucial to a problem which I take up in a moment.

The main motivation for allowing private money, I presume, is to achieve a greater stability of value than government monies have recently provided. There may be other quality characteristics of money than stable value, but I cannot think of any of comparable importance that are not related to this characteristic. If so, it would seem that the gold standard would be acceptable for achieving the same result. The interest in competitive money apparently reflects a belief that the gold standard is no longer practicable, and a dissatisfaction with the lack of stability of government fiat monies. I too share this dissatisfaction.

I personally have no aversion to competitive money issues, and I have learned a lot from Vaubel's writings on this subject. I am

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skeptical, however, that competitive monies could develop in modern economies against the likely government opposition. In explaining the basis for this opposition, I shall point to a couple of crucial problems that Vaubel has left out of his discussion. Yet, if the instability of government money continues to create a demand for stable money, I think competitive monies may develop through the back door in a way that governments would not prevent even though they would not encourage it.

I start from the observation already noted that prices will tend to be stated in terms of the most widely used money, and I believe a dominant currency acting as the unit of account will be hard to avoid. And prices in this unit are and will be sticky. There is considerable uneasiness among economists as to why prices should be sticky, but I take it to be empirically established except in periods of extremely volatile inflation. The stickiness is due to explicit as well as implicit contracts and to what I have referred to elsewhere as the difficulty of coordinating price changes in industries that are less than atomistic.

The consequence is that monetary changes initially affect real output and affect prices only in the long run. The fluctuations in aggregate demand over the business cycle show up as fluctuations in money supply or demand. The OPEC oil price increases which affected output were a special case of such fluctuations. Governments want to be able to deal with these disturbances, primarily through monetary policy. Under competitive monies their ability to do so would be lessened or eliminated. Whether a downgrading of monetary control is desirable or not depends, of course, on how well governments stabilize aggregate output while at the same time maintaining the value of the currency. The record has not been very good in recent decades. My only point is that governments will not readily give up this capability. They always claim, of course, that they will learn to do better in stabilizing economic activity and prices. Moreover, there is great fear by all but confirmed *non*interventionists that crises and depressions can develop that governments must have the tools to deal with. Perhaps they could do so without maintaining power over the money supply, but the latter is clearly the traditional and well-known instrument for such intervention. Thus, this attraction of government control over the money supply rules out competitive monies unless one believes governments should not have such control. On this issue both sides have good points, but for political reasons government control dominates the debate at the present.

Among those who want to remove government control, the debate is whether competitive monies would be better than a constitutional rule of monetary conduct that would guarantee price stability. Lack

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of experience in modern times with competitive monies is obviously a practical drawback in gaining support for them. We have had a little more experience with monetary rules than with competitive monies, but opponents of rules claim the experience has not been satisfactory. I will not pursue that question here.

Let me turn instead to innovations underway in the U.S. payments system and abroad that could eventually result in the development of a competitive monetary system that would satisfy Vaubel, and which the government shows no signs of stopping, until perhaps it will be too late. I refer to the extension of transactions services to the liability deposits of various funds outside the traditional banking and thrift institutions. These are now offered by mutual funds, brokerage houses, and are being developed by retail businesses such as Sears and Roebuck, though so far on a limited scale. These deposits are far from becoming common transactions media yet, but as costs of transferring funds decline, some of them could become common means of payment. Eventually, the government could be eliminated from money creation, as these funds develop a clearing mechanism that uses federal funds less and less. Regional banks could eventually handle most of the transfers among funds, and only net balances to be cleared among regional banks would require them to hold a small amount of federal funds. Perhaps Treasury bills might be used to settle net clearings, eliminating the Federal Reserve entirely. Whether the government would allow its money to be eliminated from such a payments system is unclear. It might not be able to stop it.

Whether this demise of traditional monetary policy would be a good thing depends on one's view of past aggregate demand management. In this new system the issuers of money would have no incentive to regulate aggregate demand, and the government could not engage in open market monetary operations. Its own money might not, as I say, be used widely enough in the economy to be of significance. For monetary operations it would have to hold a large inventory of privately issued money, which it would not do. Under these circumstances the government could no longer have a viable policy of stabilizing the price level. Stabilization would depend on the private issuers. Individually, they could rely on convertibility into gold, for example, to guarantee a stable value. The government could define a unit of account in terms of commodities that gave it a stable value, but private monies could not guarantee a fixed rate of exchange in this unit without convertibility. If there were many private issuers and convertibility were not adopted, however, individual issuers could actually guarantee a stable value of their currency only through indexing.

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If the unit of account were subject to inflation as now, some of the private issuers could find it attractive to offer stable values rather than maintain a fixed value in terms of the unit of account. Indexing would be one method, made possible for accounts which had fluctuating market values through marking to market, as our money market mutual funds do today. Some funds could be indexed to a price index of the dollar in which prices are expressed. Such indexing would require, of course, that assets of the fund also be indexed in the same way, to provide balance that eliminated inflation risk. But large institutions could probably expand their assets in indexed loans to match indexed liabilities. This is now legally possible in the United States. As Huston McCulloch (1980) noted in the *American Economic Review,* previous legislation passed in 1933 to abrogate gold clauses, which also prevented any form of indexing of contracts, was repealed in 1977—apparently without much thought at the time about these consequences. Of course, the government would maintain a monopoly of currency. But this could become even less important than it already is through charge cards.

Yet I see a flaw in the development of private monies with indexing. If they are successful and become generally used, prices will come to be expressed in their units, not the traditional dollars, because the economy naturally expresses prices in terms of the common medium of exchange, for convenience and simplicity. But a money that is the unit of account cannot be indexed. Indexing of such money would make price movements explosive.

So I am not sure we can in fact develop an indexed money that can be maintained. Its very success would lead to its general adoption as the unit of account and make the indexing no longer feasible. If that is right, we must rely on convertibility or monetary rules to maintain a stable value of money, though the money could be issued by a private as well as government institution. But if a rule is to enforced, it does not allow a free monetary system.

In the future, I do not think stability of the value of money will be a major issue, except that an inflationary environment can disrupt non-monetary investments. It is becoming increasingly easy to avoid any inflation tax by holding a variety of other assets and converting them into money to make payments as needed. We want stability in monetary policy to keep economic activity on a stable path as well as stable price path. I am skeptical that competitive monies will provide an acceptable stability of general economic activity. The government monopoly of monetary control has not done very well either, but there is a belief, or at least hope, that it can do better.

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Until that belief is shattered, for the general public, we shall not see o6ndiscretionary monetary rules or competitive monetary reforms.

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COMMUNICATIONS

RATIONAL OPTIMIZING, MONETARY THEORY, AND WELFARE

William Walter Brown and Gary J. Santoni

Introduction

Observers of monetary affairs—central bankers, congressmen, economists and others—commonly believe that unanticipated increases (decreases) in money growth produce short-term increases (decreases) in real output.[1] This view stems from theoretical argument, as well as ingenious empirical studies exploring the relation between changes in money and national income.[2] The proposition appears in modern textbooks and articles intended for non-economists.[3] It is part of the conventional wisdom about money's impacts and forms the underlying theoretical basis for discretionary monetary policy.

Despite the proposition's credentials, we contend that a certain amount of care must be exercised in its interpretation. A failure to clearly distinguish between real income based on individual utility

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[1]See Barro and Fischer (1976), Taylor (1982), and Hoover (1984) for recent surveys of the perspectives of economists on this issue.

[2]The nature of the theoretical argument can be found in Lucas (1972), Sargent and Wallace (1975), and Barro (1981). Friedman and Schwartz (1982) and Kormendi and Meguire (1984) illustrate the depth and range of the evidence.

[3]See Darby (1976), Johnson and Roberts (1982), and Barro (1984) for representative textbooks. An example of an able nontechnical presentation of the main ideas is provided in Batten and Stone (1983).

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maximization and its narrower measured counterpart, real GNP, can make the proposition appear inconsistent with the presence of scarcity. Furthermore, unless the profession's widely held methodological conviction that theory should rest on "economically intelligible substitution effects, not unintelligible 'disequilibria' " (Lucas 1972, p. 225) is jettisoned, unanticipated changes in money growth will always decrease real income in the broad theoretical sense.[4]

These points have been implicit, at least, in the works of others.[5] Our purpose is to draw them into sharper focus and to underscore their implications for the conduct of countercyclical monetary policy.

The Standard Rationale for Money's Impact on Real Output

In modern monetary theory, each individual is rational; within the bounds of existing property rights and transaction/information costs, utility increasing trading opportunities are exhausted. Specialization is carried out to the greatest possible extent and utility maximizing individuals search (gather information regarding higher-valued uses of resources) to the extent that the expected gain from additional search equals the marginal cost of searching. Only new information that changes peoples' assessments of future events changes relative prices and the allocation of resources.[6]

Unanticipated increases in monetary growth have real effects, say Barro and Fischer (1976, p. 160), because if "individuals *incorrectly* attribute some part of the price rise to a real (temporary) demand shift, price expectations—and therefore actual prices—will rise less than proportionally with money." Likewise, Friedman and Schwartz (1982, p. 415) note that sellers and producers "have no way at the outset of knowing whether the change in demand for their products is a change relative to the demand for other products, to which it is in their interest to react by expanding or contracting output, or a change in general nominal demand, to which the appropriate response is an adjustment of prices." They reach the conclusion, therefore, that "[d]eviations of nominal income from its anticipated growth path, produced by deviations of monetary growth from its anticipated path, will produce deviations in output from the path that would be

[4]A classic discussion of the meaning of broadly defined real output and wealth can be found in Fisher (1930, ch. 1).

[5]This literature extends back, at least, to Simons (1936) and Knight (1937). An important impetus for the contemporary research of the issue was the work of Milton Friedman. See, for example, Friedman (1953, 1961).

[6]See Lucas (1972) and Barro (1976) for formal models incorporating these ideas.

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indicated by real factors alone" (p. 413). Batten and Stone (1983, p. 12), meanwhile, contend that "only when the change in spending (motivated by the monetary disequilibrium) has been identified as permanent will producers change their prices and return production back to its normal rate." The upshot is that "[i]n this setting, monetary fluctuations lead to real output movements in the same direction" (Lucas 1972, p. 120).

A Potential Confusion

An unanticipated increase in the growth rate of money must draw more resources into measured production to increase real GNP in the short-run.[7] Since the quantity of inputs supplied depends on the perceived real return from employment, resource owners must *believe* that real wages have risen. Furthermore, these changed beliefs must be reconciled with the general understanding that changes in money growth do not change underlying production technology, and hence resource productivity, nor preferences with respect to leisure and work. In the standard theory, the reconciliation turns on costly information.[8]

Resource owners must cope with the fact that information regarding equilibrium relative prices is costly. A surprise monetary injection complicates their problem. A new price level—not immediately perceivable at zero cost—must be discovered. This lack of perception (confusion) on the part of individuals results in an expansion of measured output with resources that otherwise would have been engaged in higher-valued activities. Specifically, search for higher real wages (unemployment), consumption of leisure, or buffer stocks are reduced. When individuals become fully acquainted with the higher rate of money growth, they return to the pre-surprise optimal allocation of activities.

The standard argument for the impact of money on measured output rests squarely on the proposition that owners transfer resources away from higher-valued activities (search and leisure) to lower-valued

[7]The arguments typically refer to labor because capital and other factors are regarded as fixed in the short run.

[8]Foreshadowing our comments, Barro (1981, p. 74) notes:

> A significant weakness of the approach is the dependence of some major conclusions on incomplete contemporaneous knowledge of monetary aggregates, which would presumably be observed cheaply and rapidly if such information were important. The role of incomplete current information on money in equilibrium business cycle theory parallels the use of adjustment costs to explain sticky wages and prices with an associated inefficient determination of quantities in Keynesian models. The underpinning of the two types of macroeconomic models are both vulnerable on *a priori* grounds.

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employment. Real output in the broad economic sense must necessarily fall.[9] Only if individuals were engaged in a non-optimal combination of work, search, and leisure, could a monetary innovation increase real output in the broad sense. But this possibility is inconsistent with rational optimizing within the constraints of costly information.

If, as suggested by conventional theory, individuals are systematically confused by non-systematic monetary injections, then *measured* real income will increase during an episode of unanticipated monetary growth. This is so, however, only because the "productivity" of search and the "income" from leisure—factors that contribute to real income—are not included in measured income. Simply stated, measured output is not sufficiently broad to capture all the relevant economic impacts of a change in monetary growth.

Given the unavoidable exogenous shocks that buffet the economy, individuals adjust in wealth-maximizing ways. Consequently, given institutional constraints, uncertainty, and costly information, the economy travels along a path that maximizes the value of broadly defined total output. If the standard story of money's short-run effects were true for this broad definition of real output (one that includes the returns from search, etc.), unanticipated increases in money growth, by temporarily pushing the economy above this long-run path, would generate an increase in total real wealth. At a very intuitive level, this would seem to deny a world of scarcity since *additional* nominal money, for all intents and purposes, can be created at negligible cost.

There is evidence that the distinction between broadly defined real output and its narrower measured counterpart is not lost on individuals. For example, Lucas (1973, p. 334) found that "the [Phillips] tradeoff tends to fade away the more frequently it is used, or abused." The empirical evidence that the correlation between unanticipated money changes and measured real output appears to weaken with the frequency of monetary shocks indicates the shocks themselves are wealth reducing. As individuals gain more experience with monetary variability, they more quickly interpret rising nominal prices as reflecting money shocks and learn not to reallocate resources away from wealth-maximizing activities.[10]

Implications for Countercyclical Policy

The distinction between real output in the theoretical sense and the concept governing its national income measure complicates the

[9]See Alchian (1969) and Alchian and Demsetz (1972) for discussions of the economic value of search, "unemployment," and buffer stocks.

[10]See Kormendi and Meguire (1984) for additional evidence on the effects of increased monetary variability.

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debate on the effectiveness of countercyclical monetary policy. Consider Robert Barro (1976, p. 26) on the limited potential for successful countercyclical policy:

> It is only to the extent that the monetary authority has superior economic information (as well as the appropriate objectives), and to the extent that providing information to the public is costly, that there is a call for departures from the constant growth rate rule. Further, if the attempt to use countercyclical policy to exploit the superior information results in a higher variance of money, . . . there would be a tradeoff between the beneficial effects from the countercyclical elements . . . and the adverse effects from pure monetary variance.

The problem with Barro's statement is that even if the monetary authority had superior information—and this information were too costly to disseminate directly to the public and there were no social costs associated with increased monetary variance—once it is recognized that unexpected changes in mean rates of monetary growth generate reductions in broadly defined real output, the "beneficial effects" of countercyclical monetary policy are unclear. Unanticipated changes in money growth both reduce and redistribute wealth. To maintain there are "beneficial effects" of changes in the quantity of money, requires an extra-theoretic welfare criterion where redistributional effects compensate for reductions in wealth. No such welfare function is commonly explicit in monetary policy analysis and consequently the limited a priori case for discretionary policy is even more problematic than Barro suggests.

Arguments against discretionary policy based on the central bank's inability to correctly judge the leads and lags involved, or the incorrectness of the central bankers' motives, in one sense concede too much. They presume, implicitly at least, that a positive relation between measured real output and changes in money growth provides a theoretical basis for effective discretionary policy that is simply impractical due to the problem of lags, etc. But if discretionary monetary policy drives resources away from wealth-maximizing allocations, even a perfect ability to increase measured output will not necessarily enhance welfare.

Conclusion

At any given time, there is a stock of information regarding the value of alternative uses of resources. With rational optimizing, this information is embedded in relative prices that coordinate wealth-maximizing resource flows from one use to another. When the growth

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rate of money changes unexpectedly, it produces short-run distortions in relative prices, thereby reducing the stock of economic information. The reduction in the stock of economic information is a reduction in aggregate wealth, even though the discoordination of economic activity that results occurs simultaneously with systematic changes in measured real output.

Explicit recognition that an unanticipated acceleration (or deceleration) in money creation is not a source of wealth in the broad sense generally used in economic theory, but rather a discoordinating activity, would, in our view, put the conduct of monetary policy on a sounder theoretical footing. It would also, as a practical matter, make it even more difficult to remain sanguine about the effectiveness of countercyclical monetary policy. If monetary authorities are interested in promoting long-term economic growth, not the redistribution of existing wealth, they should behave predictably and reduce central-bank generated surprises in money growth to zero.

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BOOK REVIEWS

Financial Reform in the 1980s
Thomas F. Cargill and Gillian Garcia
Stanford, Calif.: Hoover Institution Press, 1985, 214 pp.

The financial services industry is in a state of flux. What had been the widely accepted rules of the game are being challenged on many fronts as rapidly changing technological and economic conditions create new profit potentials and competitive pressures for the traditional depository institutions. In their recently published book, *Financial Reform in the 1980s*, Thomas Cargill and Gillian Garcia focus on this shifting environment. They set out to describe what has happened in the volatile years since 1979 and to consider where recent events might lead. In so doing, the authors make two primary contributions.

First, the legal, regulatory, and market-driven changes occurring over the past six years have altered substantially the system of bank regulation and control established during the 1930s. Cargill and Garcia attempt to place these recent events in perspective by, first, providing a brief overview of U.S. financial history through the late 1960s. They then discuss in more detail the events of the 1970s that led to the recent financial reforms. The authors also review the specific changes that have occurred, examining the impact of the Federal Reserve Board policy redirection announced in October 1979 and the unannounced policy shift in the fall of 1982. In addition, they describe and consider the implications of the 1980 and 1982 acts of Congress. For readers confused by the apparently abrupt changes in banking law and structure, this book provides a useful source of information and explanation.

Second, while most academics and policymakers treat monetary policy and financial institution regulation as conceptually separate, Cargill and Garcia emphasize the interdependence of the two. They examine how financial innovation and regulatory reform have affected the Federal Reserve's ability to control the money supply. In fact, the authors note, recent financial innovation has made illogical, incomplete, and to some extent, irrelevant the commonly accepted definitions of money.

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For some readers, the authors will appear to accept too readily the need for a federal role in managing the money supply. Cargill and Garcia remark early on, for example, that "financial and monetary arrangements cannot be left to the market, even in the case of an Adam Smith world of competition" (p. 11). A few pages later they note, "[G]overnment does have a responsibility to determine a stable price level. This cannot be established by the market" (p. 17). And in discussing the recent problems that have plagued the Federal Reserve Board's efforts to control the money supply, Cargill and Garcia seem to imply the Fed can know what monetary growth rate would achieve the final economic goals in terms of growth in real GNP, employment, and the inflation rate.

The difficulty recognized and discussed in depth by the authors is the question of implementation, i.e., how is the Fed to reach its desired goals. In fairness to the authors, however, their goal was not to critique the general premise of a central bank, but rather to describe the changing environment in which our monetary authority has worked during the past few years, and they do that quite well.

Cargill and Garcia do recognize the problems created by extensive regulation of depository institutions in a changing economic and technological setting. In their chapter examining the crisis among thrift institutions, for example, Cargill and Garcia lay much of the blame for the industry's current weaknesses with public policies promoting and subsidizing home ownership, thus restricting the ability of S & Ls to diversify. The authors observe, "The pronounced disintermediation and substantial interest rate risks [faced by savings and loans during the late 1970s and early 1980s] can be regarded as risks undertaken beyond the industry's call of duty; they were also risks imposed on S & Ls by the perverse regulatory structure" (p. 87).

Cargill and Garcia do not only see problems with the thrift industry, however. In reviewing the regulation of depositories across the board, they observe that many of the predictions of regulatory capture theory have been fulfilled. The regulatory structure has been used primarily to protect the property rights and rent-seeking abilities of existing financial institutions. While recent market-driven innovations as well as some legislative and regulatory changes have increased the competition faced by most banks, thrifts, and credit unions, a struggle continues over the powers that specified categories of financial institutions may exercise and where they may open offices. Current debates within the financial services sector can be largely explained as industry efforts to use Congress and the regulators to protect individual markets.

In its later chapters, the Cargill and Garcia book does become a bit technical for the general reader. But the authors make every effort to provide necessary explanations of the models they use as they go along. A reader willing to invest some time and effort should be able to follow the arguments being made.

On the other hand, Cargill and Garcia are able to summarize and simplify some extremely confusing details through the use of tables. In

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particular, they use tables to trace the development of important private and regulatory innovations in financial services since the turn of the century. They even include information about the sources of these developments—i.e., they identify the depository that was the first to find its way through the regulatory morass and, thus, provide new products and services. Cargill and Garcia also use a table to sort federal and state regulatory agency responsibilities for the many types of regulations applying to a wide range of depository institutions. Finally, the authors provide an excellent bibliography for the student or other reader interested in pursuing further any of the ideas presented.

In short, the Cargill and Garcia book is timely and complete, providing readers confused by the rapidly changing financial services environment a description of the current state of affairs as well as an explanation of how we got here. It is unfortunate that the very nature of its topic may cause the book to be rapidly dated as financial markets and their regulatory environment continue to evolve. The contribution provided by conceptually connecting the structural and monetary sides of Federal Reserve and depository institutions should continue to be of value, however. And while it may bother some readers that the authors implicitly accept a positive role for a central authority in controlling the money supply, given the overall tone and contribution of the book, this is a relatively minor point.

Catherine England
Cato Institute

Inside the Fed: Making Monetary Policy
William C. Melton
Homewood, Ill.: Dow Jones-Irwin, 1984, 226 pp.

William Melton has given us an excellent account of Fed policymaking. His book is written in an uncontrived, forthright, fast-paced, easy flowing style, and was a pleasure to read. After reading it, I knew that I had effortlessly acquired some new insights into the Fed and its conduct of monetary policy.

The author's contribution to the literature derives from his unusually rich experience—four years at the Federal Reserve Bank of New York, a sometime academic, a Fed-watcher at a major New York bank, and now Vice President and Senior Economist at IDS/American Express. The book makes two major contributions. First, it describes and analyzes the interplay between practical and academic issues in the conduct of monetary policy. In particular, the author offers (particularly in Chapters 7 and 8 and in the Appendix) some fascinating insights into the interface between the Federal Reserve and the money markets. Second, the book conveys the Fed's overriding concern for the safety and stability of the financial system. Four vignettes on Fed lender of last resort activities in recent crises illustrate that concern.

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Although this book is not intended to be scholarly, academics, professional economists, and students can all benefit from it. Fed-watchers that lack the range and depth of the author's experience may derive useful information on the way in which those inside the Fed think and act. The Fed can be hard to divine for those who have not served as part of its supportive brotherhood. Working for the Fed is like being educated at an Ivy League school. It is not just the academic training that is valuable, but also the initiation into the Fed's standards of professional conduct and its ways of thinking. Moreover, the New York Fed is the best training ground for future Fed-watchers, because it is the agent that implements monetary policy through open market operations. Melton's broad overview and synthesis may also be useful to some Fed economists, particularly those tucked away from the mainstream of policy debate at a regional bank or in some minor tributary at the Board.

The book primarily focuses on domestic policy, but it does contain one chapter (Chapter 11) devoted to international issues. Several chapters describe, and bring the reader up-to-date on, changes in the structure and function of the Federal Reserve. The importance of U.S. financial history and the emphasis on regional interests explain the Fed's cumbersome structure with its 12 unequal decentralized regional banks and the unifying tendencies of the Board, all of which culminate in the Federal Open Market Committee. The interplay between the Board and staff in formulating monetary policy, the limited role of the regional banks, and the execution of prescribed policies by the "Desk" in New York are effectively portrayed in Chapters 3, 7, and 8.

Two long-standing academic debates are also revisited. The first involves the controversy between advocates of "rule-adhering monetarism" and the "flexible response pragmatists." The second addresses the question of the relative importance of monetary and fiscal policy.

In reviewing the recent struggles between monetarists and pragmatists for policy control at the Fed, Melton begins in Chapter 3 by briefly describing the evolution of Fed policy away from concentration on credit and the availability doctrine toward an emphasis on M1 as the intermediate target and control over the supply of nonborrowed reserves as the policy instrument. The impact of academic writers as well as growing Federal Reserve and congressional dissatisfaction with the inflationary policies of the 1960s and 1970s set the stage for the major policy departure of October 1979. Chapter 4's insider description of the "Saturday Night Special" is interesting history that will help students of policy better understand the significance of that well-known event.

The book also provides some useful insights into events leading to another, unpublicized shift in policy in October 1982—the abandonment of M1 as the target and nonborrowed reserves as the instrument. In this reviewer's estimation, the major deficiency of this book is the author's failure to appreciate the full significance of this second change. October 1979 had never heralded monetarism, but the 1982 policy shift took the

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Fed away from intermediate targeting and back to a policy of stabilizing interest rates, thus departing further from monetarist principles than is ever recognized by this author.

Post-1979 criticism of the short-term volatility of both money and interest rates, concern for the international debt crisis, fears about the increasing number of insolvencies in the financial sector, and the severity of the 1981–82 recession, caused the Fed to change its operating procedures in October 1982. It began to monitor borrowed reserves in an effort to stabilize interest rates. Moreover, while appearing to target M2, M3, and Benjamin Friedman's credit aggregate, and continuing to express concern about inflation so as not to lose the expectational war, the Fed had, in fact, marched away from rules right into the camp of the pragmatist school.[1]

By the summer of 1984, fears that deflation would deteriorate into depression had abated, interest rates had become less volatile, and M1 velocity was reassuringly returning toward its trend. The stage was set for a resumption of the 1979 experiment.[2] Melton's lack of emphasis on the October 1982 change in operating procedures suggests that he took such a resumption for granted. A shift back toward the policies announced in 1979 might be expected to be more successful this time because one of the obstacles to monetary control—lagged reserve accounting—was replaced by almost contemporaneous accounting in February 1984. Consequently, in July, the Fed announced its intention to give M1 more weight again in policy formation, but the replay did not take place.

Late in 1985, we are once again concerned about, and unable to satisfactorily explain, the recurring decline in M1 velocity. Moreover, the relationships of M2, M3, and total domestic nonfinancial debt to GNP are also off-track. Consequently, if Melton were writing his book today, I suspect he would give even more attention to Paul Spindt's MQ money index. I anticipate that this index will soon be utilized in the monetary policy report to Congress, for MQ's velocity is better behaved than M1's. Moreover, under the Humphrey-Hawkins Act, the Fed needs to present to Congress some intermediate target that will rationalize its 1985 sustained disregard of M1 growth.

At this point, I should mention my partial disappointment with the Appendix, which might have, but did not, provide a self-contained, technical analysis of open market operations. The author does mention Milton Friedman's sharp criticism of the Fed for unnecessarily churning

[1]See Thomas F. Cargill and Gillian G. Garcia, *Financial Reform in the 1980s* (Stanford, Calif.: Hoover Institution Press, 1985), and Frank E. Morris, "Rules Plus Discretion in Monetary Policy—An Appraisal of Our Experience Since October 1979," Federal Reserve Bank of Boston, *New England Economic Review* (September/October 1985): 3–8.

[2]Gillian Garcia, "The Right Rabbit: Which Intermediate Target Should the Fed Pursue?" Federal Reserve Bank of Chicago, *Economic Perspectives* (May/June 1984): 15–31.

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the Treasury bill markets, but the issues are not examined with the depth they deserve.[3]

The second long-standing academic debate addressed concerns the relative importance of monetary and fiscal policy. Given the size and duration of the deficit, Melton might have made an interesting contribution on the Treasury-Fed interplay (Chapter 9). That he does not, may result from the fact that he does not appear to have had inside-the-Treasury experience to match his inside-the-Fed qualifications.

The author's contribution on crises (Chapter 10) is a valuable one. The writer successfully conveys the Fed's conditioned reflex to avoid, or contain, crises. The Fed's generally cautious stance on most policy issues can best be understood in the light of the burden it feels from its lender of last resort responsibilities. This chapter presents four case studies on the Fed's handling of the Penn Central, Franklin National, Hunt Silver, and Drysdale Government Securities market crises. Given the spate of insolvencies currently occurring among depository institutions, and the rapidly growing yet poorly understood risk exposures in other sections of the financial markets, I anticipate that academic economists, historians, politicians, practitioners, and public policy scholars will soon be closely examining the Fed's lender of last resort role.

In short, I recommend the book to a wide readership. It stands high in the return-to-effort rankings among economic policy texts.

Gillian Garcia
U.S. General Accounting Office

Competition Policy and the Professions
Organization for Economic Cooperation and Development
Paris: OECD, 1985, 112 pp.

This small book reminds us that medieval standards are alive and well in the practice of the liberal professions in the countries of Western Europe, the United States, and Japan.

The book is a report produced by the OECD's Committee of Experts on Restrictive Business Practices on the relationship between competition policy and the professions. The Committee assigned a Working Party the mission of describing the characteristics of the liberal professions in the member countries of the OECD, comparing the provisions of law as they apply to competition in professional practice, studying the forms of self-regulation in the professions, and examining whether professional self-regulation was compatible with the promotion of competition.

The book deals mainly with the professions of medicine, the law, and architecture, although reference is occasionally made to engineering, veterinary practice and other professions. The information it contains was largely derived from responses to questionnaires sent to the govern-

[3]Milton Friedman, "Monetary Policy: Theory and Practice," *Journal of Money, Credit and Banking* 14 (February 1982): 98–118.

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ments of the relevant countries. For the most part, the book is descriptive, and as such it is a useful catalogue of the law of professional practice and of the forms of professional self-regulation in the richer countries of the world. There is a small section of "conclusions" and "suggestions for action."

An encyclopedic entry on the medieval guilds of Western Europe says that they were "economic . . . associations of persons in the same business or plying the same craft. . . . The primary functions were to establish control over that profession or trade, to set standards of workmanship and price, to prevent encroachment by those of other trades and localities, and to establish status for members of the guild in society. . . . Each guild set the terms of its craft, forms of labor, standard of product (e.g. the weight of a loaf of bread), and methods of sale. . . . The wealthy guilds were able to secure immunity from interference by noble or king either by paying large sums of money, promising future benefits, or by intimidation."

History tells us that the guild system did not survive the Middle Ages. Nations formed, royal power was enlarged, and kings reduced the authority of the guilds; communications improved, trade expanded, foreign-made goods were introduced into previously autarchic communities, and capitalists and entrepreneurs appeared as instrumental agents of change.

The guilds, we are told, "were not equipped to adapt themselves to expanding economies. They tended to guard their monopolies jealously and to oppose change. . . . They limited the number of masters in the trade and the prices for apprenticeship rose exhorbitantly." So the guild system is supposed to have come to an end. Everywhere, that is, except in professional practice (and, of course, in trade union practice—to which OECD might now fruitfully turn its attention).

Entry into the professions is restricted either explicitly or implicitly, as by raising the cost of entry. Services are compartmentalized by legal definitions of the activities that different professional title-holders may undertake. The Danish medical association limits the number of practitioners in each geographical area and controls access when a practitioner sells his practice; in Greece, doctors may practice only in the areas covered by their professional association; in the United States, practicing attorneys administer the bar examinations and the accreditation of law schools and are able to limit entry by adjusting passing and accreditation standards; in Alberta lawyers may not practice with lawyers from other provinces; architecture may not be practiced in most countries except by those who complete extensive schooling and are licensed.

Constraints are put on the information that practicing professionals may communicate to consumers by advertisement. In Belgium, the Netherlands, and France physicians may not advertise at all; in Britain, they may not do so in the media; in Switzerland, they may put only small notices in newspapers that they have opened a new office or have returned from vacations. In Finland and Norway, lawyers may advertise only that

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they are "available"; in Germany, lawyers may not solicit clients at all. In Britain, the Royal Institute of Architects prescribes that architects, when advertising, must "heed the profession's responsibilities . . . to fellow members."

In many countries, minimum fees are fixed for professional services. Professionals are required to offer services only as individuals or in partnerships with other professionals; corporations may not be formed, nor may individuals form partnerships with non-professionals. Sometimes services may be offered at not more than a single office. Often professionals are not permitted to accept salaried employment.

It is clear that the properties of the medieval guilds and their methods survive in the practice of the liberal professions in the industrial world. The primary functions of the professional associations, like those of the guilds, are to control the profession, set standards of workmanship and price, prevent encroachment of others, and establish status. The associations, like the guilds, set the terms of the craft, the forms of labor, the standard of product and the method of sale.

There is, however, one essential difference between them. The guilds were finally diminished in their authority by the rise of the power of the nation state and by the development of capitalist market systems. The professional associations, in our time, have been able to hold the market at bay by capturing the coercive power of the state. The state is now not so much an adversary of the professions as it is their ally in the enforcement of control.

Not only does the state permit practitioners in the liberal professions to combine, to administer cartels, and to define standards of unacceptable professional conduct and unacceptable forms of business organization (while forbidding such activity in other businesses). The state also, on behalf of current practitioners, imposes costs of entry on new entrants into the licensed professions and permits current practitioners to set the standards of entry and to manipulate the numbers who are considered to have met those standards. In addition, the state criminally prosecutes unlicensed persons who engage in professional practice.

The consequences of this alliance of practitioners and the coercive state is that consumers are kept in ignorance, the fees they pay for professional service are raised artificially, innovative and efficient forms of practice are proscribed, and competent persons are prevented from offering services that are defined to be within the set monopolized by some other profession.

The OECD report acknowledges that anti-competitive practice characterizes the market for professional services and that this has malallocative and regressive wealth distributional effects. But it is less than wholly courageous in its suggestions for correction. It does not recommend that the system be dismantled. Instead, there are recommendations for "re-examination," "consideration," and "review." This is not surprising. The OECD is, after all, a coalition of governments, all of which

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have permitted their powers to coerce to be used by the professional guilds for the self-advancement of their members at the expense of others in society.

Simon Rottenberg
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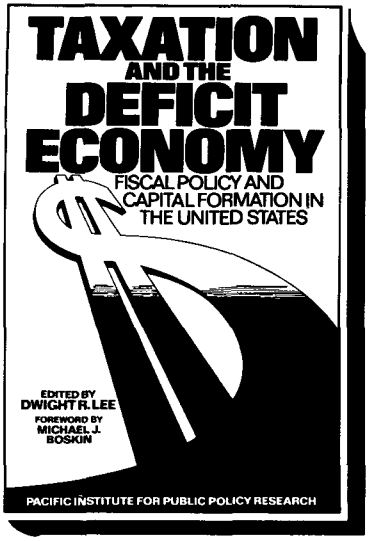

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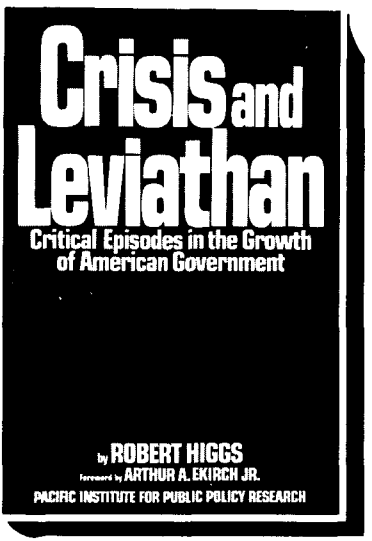

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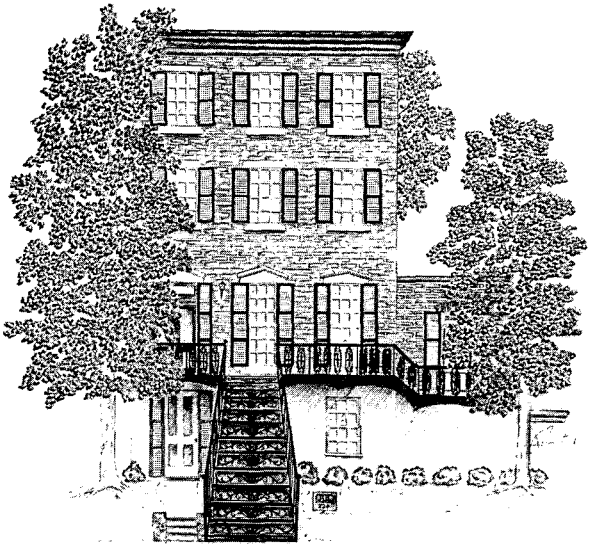

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A MONETARY CONSTITUTION

The monetary authorities of the United States—that is, the Administration, the Congress, and the Federal Reserve System—do not obey *any* reasonably well defined set of policy rules that would tend to produce some particular, reasonably predictable path of the price level over the long haul. There is no monetary constitution in effect that limits the short-run options of the authorities for the purpose of providing long-run stability. . . .

Over the long run, monetary policy is unpredictable because we do not know what people will be in charge, what conditions they will face, or what economic theories they will believe in. Successive growth rates of the money stock are not the results of coordinated decisions at each separate date; rather, they are the outcomes of the confused and unprincipled interaction of Administration, Congress, and Federal Reserve. The rules of this interaction have been more or less designed to dissipate the responsibility for monetary policy in the way most comfortable for all parties. Each can with reason blame the other two. But note that none of these uncertainties would matter very much if some set of constitutional constraints were in force that would prevent the rapid cumulation of moves in one direction.

—Axel Leijonhufvud

"Inflation and Economic Performance." In *Money in Crisis*, pp. 19–36. Edited by Barry N. Siegel. Cambridge: Ballinger Publishing Co., 1984.

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